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CATALOGUE OF STARS WITHIN TWO DEGREES OF THE NORTH POLE

CAROLINE E. FURNESS

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CATALOGUE OF STARS WITHIN TWO DEGREES OF THE NORTH POLE

DEDUCED FROM

PHOTOGRAPHIC MEASURES MADE AT VASSAR COLLEGE OBSERVATORY

BY

CAROLINE E. FURNESS, PH. D.,

Assistant in the Observatory.

WASHINGTON, D. C.:
PUBLISHED BY THE CARNEGIE INSTITUTION OF WASHINGTON.
1905.

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CARNEGIE INSTITUTION OF WASHINGTON

PUBLICATION NO. 45.

PUBLICATIONS OF THE VASSAR COLLEGE OBSERVATORY, NO. 2.

MARY W. WHITNEY, *Director.*

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PREFACE.

The investigation involved in this memoir is an extension of the stellar catalogue presented in Publication No. 1 of the Vassar College Observatory. Publication No. 1 gives a catalogue of stars within one degree of the north pole. Publication No. 2 extends the catalogue to two degrees from the pole. Both catalogues are based upon photographs taken by Professor Donner of Helsingfors, Finland, and secured through the courtesy of Professor Jacoby of Columbia University. The direction of the measuring and reduction of the plates has been in the hands of Caroline E. Furness, Ph. D., assistant in the observatory. The observations for magnitude, photographic and visual, made after the manner described in the text, were carried on by the director. The computing corps has consisted mainly of graduates of Vassar College, of whom Miss M. E. Tarbox and Miss B. Tompkins have rendered especial service.

The major part of the expense of the reduction has been met by a grant from the Carnegie Institution of Washington, D. C.

MARY W. WHITNEY,
Director of Observatory.

VASSAR COLLEGE, *June*, 1905.

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CATALOGUE OF STARS WITHIN TWO DEGREES OF THE NORTH POLE.

I.

INTRODUCTORY.

The first publication of the Vassar College Observatory treats of the measurement and reduction of a set of four photographic plates covering the region of the sky within one degree of the north pole. These photographs were taken at the Helsingfors Observatory, Finland, and form part of a series of twelve negatives, which together include all the stars of less than two degrees polar distance. The four plates first treated have their centers at declination 90°, the remaining eight have their centers lying on the circle of 89° declination at intervals of 45° right ascension. Because of the high declination this procedure results in a peculiar kind of overlapping, the character of which can easily be seen by referring to Publication 1, Sec. I, in which is given a description of the plates and also an illustrative figure. The present paper treats first of the measurement and reduction of the 89° plates with a preliminary catalogue of the stars found thereon; second, of the inter-adjustment of the several plates and their combination with the former catalogue, a problem which presents considerable interest on account of the peculiarity of the overlapping above referred to; and third, of the formation of the final catalogue of all the stars found on the twelve plates.

The method of performing the measurement and reduction, which form the first part of this paper, is in general the same as that employed in Publication 1, Secs. II–VIII. Deviations from it are occasionally necessary because of the fact that the north pole is no longer at the center of each plate but is on the edge. These variations will be mentioned in their appropriate places. A detailed description of the plates is given in Publication 1, Sec. I.

The meteorological and other data connected with the exposure of the plates were sent from the Helsingfors observatory, and are found in the accompanying table.

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TABLE I.

Plate 1895.	Observer.	Barom.	Thermom. Attached R.	Thermom. External R.	Length of Exposure.	End of Exposure.	α	δ
		mm	°	°	*m* *s*	*h* *m* *s*	*h* *m*	° ′
Sept. 16	D.	757.2	+ 8.4	+ 7.8	6 0	22 48 56	22 24	89 0
no. 2					3 0	52 50		
					20	53 51		
Sept. 16	D.	757.2	+ 8.2	+ 7.5	6 0	23 32 50	22 24	91 0
no. 4					3 0	36 40	(10 24)	(89 0)
					20	37 46		
Sept. 16	Dr.	756.85	+ 8.2	+ 7.4	6 0	0 10 33	1 24	91 0
no. 5					3 0	14 13	(13 24)	(89 0)
					20	15 9		
Sept. 16	Dr.	756.2	+ 8.0	+ 6.9	6 0	0 43 13	1 24	89 0
no. 7					3 0	46 47		
					20	47 53		
Sept. 18	D.	751.2	+ 9.0	+ 8.4	6 0	20 22 6	19 24	89 0
no. 1					3 0	25 45		
					20	26 40		
Sept. 18	D.	751.3	+ 8.5	+ 8.0	6 0	20 57 47	19 24	91 0
no. 3					3 0	21 1 19	(7 24)	(89 0)
					20	2 52		
Sept. 21	Dr.	764.4	+ 2.7	+ 2.2	6 0	3 2 2	4 24	91 0
no. 13					3 0	5 34	(16 24)	(89 0)
					20	6 26		
Sept. 21	Dr.	764.6	+ 2.5	+ 2.0	6 0	3 33 56	4 24	89 0
no. 15					3 0	37 37		
					20	38 21		

D. Donner. Dr. Dreyer.

II.

Measurement and Reduction; Preliminary Catalogue.

After some trial it seemed advisable to use both vertical and horizontal threads in measuring the rectangular coördinates of the star images. Thus both the X and Y coördinates were determined in the same position of the plate. It was also decided to set upon both corners of the reseau square at once, thus reducing greatly the number of micrometer readings. It was not possible to set upon the lines as is customary, since for the most part they were too indistinct. Otherwise the method of measuring and recording is the same as that described in Publication 1, Sec. II and III. Six plates were measured by Dr. Furness and two by Miss Elise Whitney. The coördinates of the standard stars were measured by both observers. Corrections were made for errors of the screw, for the reseau and for error of runs. Table II which follows contains the corrected coördinates of the two sets of images measured on each 89° plate. It also contains the coördinates of certain stars on the 90° plates which have a polar distance greater than 1° and hence are not included in the catalogue of sixty-five stars found in Publication 1.

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TABLE II.—Corrected Coördinates. Plate Sept. 16. No. 2.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
1	+ 22.5042	22.5141	+ 8.6316	9.0339
2	+ 30.0238	30.0335	− 2.4325	2.0292
4	+ 25.4530	25.4563	+ 10.4520	10.8574
5	+ 4.9571	4.9746	+ 49.7152	50.1230
6	+ 45.1850	.....	− 25.0711	.....
7	+ 36.8030	36.8089	− 7.7324	7.3244
8	+ 24.5354	24.5426	+ 14.9632	15.3665
9	+ 39.1598	39.1670	− 5.8690	5.4639
10	+ 36.8814	36.8852	− 0.5848	0.1778
11	+ 59.8598	59.8558	− 33.5996	33.1894
14	+ 54.1760	54.1820	− 16.0368	15.6325
15	+ 52.0083	52.0198	− 11.7727	11.3655
17	+ 56.5390	56.5450	− 16.5920	16.1941
16	+ 39.3317	39.3378	+ 5.8675	6.2714
21	+ 57.6026	57.6084	− 6.8952	6.4916
25	+ 35.0026	35.0150	+ 26.8502	27.2554
28	+ 42.3644	42.3640	+ 21.3662	21.7711
31	+ 41.3172	.....	+ 26.3678	.....
36	+ 47.3690	47.3803	+ 30.4554	30.8550
37	+ 43.7152	.....	+ 33.5268	.....
38	+ 30.8982	30.9088	+ 41.7176	42.1278
41	+ 30.9062	.....	+ 43.0572	.....
43	+ 22.8843	22.8964	+ 48.0392	48.4402
47	+ 18.3613	18.3682	+ 51.5093	51.9124
49	+ 44.5790	44.5908	+ 38.8710	39.2720
54	+ 20.8442	20.8578	+ 51.6943	52.1014
66	+ 47.3022	47.3188	+ 52.7854	53.1926
279	− 13.2251	13.2156	+ 59.4532	59.8588
288	− 20.9115	20.9030	+ 55.5455	55.9446
299	− 6.4938	6.4834	+ 59.1956	59.6078
301	− 47.5537	47.5430	+ 43.2271	43.6246
310	− 60.8507	60.8387	+ 31.3026	31.7118
313	− 56.3284	56.3236	+ 32.1838	32.5928
316	− 26.6741	26.6658	+ 46.5486	46.9538
322	− 17.8706	17.8664	+ 49.6828	50.0854
323	− 37.3684	37.3606	+ 36.4808	36.8860
329	− 33.0095	32.9992	+ 35.9271	36.3216
332	− 61.6729	61.6684	+ 9.7966	10.1978
335	− 20.0548	20.0472	+ 42.3364	42.7400
340	− 44.1132	44.1033	+ 15.8367	16.2406
341	− 51.8892	51.8833	+ 6.8956	7.3054
346	− 59.3544	59.3483	− 3.7846	3.3791
348	− 15.0460	.....	+ 44.5691	.....
351	− 52.2999	52.2926	− 1.5974	1.1926
353	− 42.2948	42.2790	+ 6.9677	7.3679
354	− 53.7446	53.7368	− 9.2464	8.8398
356	− 42.9593	42.9496	+ 1.6158	2.0192
359	− 49.2374	49.2268	− 14.0824	13.6704
360	− 47.5996	47.5934	− 11.7993	11.3948
362	− 14.0508	.....	+ 38.7499	.....
363	− 51.6166	51.5968	− 34.6618	34.2558
364	− 43.5092	43.4996	− 20.5871	20.1838
365	− 31.6286	31.6260	+ 2.0280	2.4233

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 16. NO. 2.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
367	− 7.4286	7.4232	+ 48.2824	48.6882
368	− 32.9756	32.9674	− 5.8866	5.4898
369	− 41.1678	.....	− 25.7891	.....
370	− 36.2698	36.2724	− 21.8838	21.4838
371	− 46.0214	46.0164	− 46.2241	45.8213
372	− 11.2664	11.2544	+ 36.6443	37.0512
373	− 9.5852	9.5712	+ 40.0630	40.4734
374	− 37.2110	37.2057	− 36.2352	35.8334
375	− 32.4648	32.4548	− 24.1612	23.7588
376	− 19.4548	19.4472	+ 9.8949	10.2994
377	− 33.1640	33.1582	− 32.2045	31.8019
378	− 26.4021	26.3917	− 13.9716	13.5644
379	− 27.6518	27.6494	− 21.6146	21.2066
380	− 27.2348	27.2249	− 22.4504	22.0510
381	− 6.3649	6.3549	+ 41.9317	42.3380
382	− 28.8660	28.8524	− 42.1272	41.7269
384	− 14.8352	14.8260	− 6.6000	6.1928
385	− 14.3036	14.2924	− 18.7038	18.2986
386	− 13.8332	13.8263	− 38.9474	38.5443
387	− 4.6228	4.6130	− 4.9148	4.5099
388	− 0.9641	0.9616	− 33.2718	32.8700
389	+ 0.4974	0.5054	− 18.8895	18.4842
390	+ 7.7294	7.7384	− 12.9100	12.5106
391	+ 14.4020	14.4038	− 55.6617	55.2488
392	+ 8.2250	8.2339	+ 13.4193	13.8238
393	+ 24.1046	24.1158	− 54.7655	54.3636
394	+ 15.7591	.....	− 6.3174	.....
395	+ 18.5363	18.5406	− 9.4986	9.0896
396	+ 28.1404	.....	− 43.5508	.....
397	+ 21.7908	21.8004	− 18.2050	17.8017
399	+ 22.9884	22.9979	− 21.4205	21.0214
400	+ 24.4803	24.4827	− 20.4642	20.0499
401	+ 27.8302	27.8368	− 25.3326	24.9340
402	+ 32.8565	32.8708	− 40.2595	39.8598
403	+ 31.2851	31.2884	− 32.4516	32.0473
404	+ 33.5662	33.5715	− 38.9350	38.5366
405	+ 20.7844	20.7979	− 0.1327	+ 0.2692
406	+ 23.8272	23.8357	− 5.2712	4.8672
407	+ 44.0546	44.0514	− 53.5390	53.1322
408	+ 32.8814	32.8875	− 22.8953	22.4922
	PLATE SEPT. 16. NO. 4.			
89	+ 20.0138	20.0212	− 57.5936	57.1912
93	+ 38.4492	38.4636	− 53.6324	53.2422
116	+ 27.9613	27.9752	− 45.5351	45.1426
120	+ 59.7208	59.7366	− 24.5162	24.1226
121	+ 46.3142	46.3256	− 31.1205	30.7208
123	+ 10.7472	10.7616	− 51.5105	51.1199
124	+ 47.4716	47.4813	− 27.2418	26.8464
127	+ 55.1755	55.1946	− 11.4184	11.0274

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 16. No. 4.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
129	+ 40.5392	40.5600	− 16.5830	16.1830
130	+ 52.3250	52.3430	− 0.5329	0.1362
131	+ 40.5012	40.5206	− 12.0400	11.6430
132	+ 39.5212	39.5444	− 9.4180	9.0242
134	+ 47.1353	47.1630	+ 1.8191	2.2101
135	+ 14.8138	14.8306	− 38.4014	38.0028
137	+ 36.5506	36.5704	− 7.3010	6.9066
139	+ 42.0048	42.0286	+ 7.5750	7.9723
140	+ 52.4154	52.4344	+ 39.0463	39.4450
141	+ 42.3112	42.3331	+ 31.0856	31.4790
142	+ 52.2780	52.3152	+ 55.3312	55.7320
143	+ 36.8953	36.9097	+ 23.6449	24.0462
144	+ 8.1517	8.1672	− 38.9622	38.5672
145	+ 31.2004	31.2214	+ 15.2400	15.6390
147	+ 23.4288	23.4522	+ 9.6520	10.0511
148	+ 32.8702	32.8952	+ 37.2309	37.6293
149	+ 30.2770	30.3072	+ 40.6604	41.0514
150	+ 31.1375	31.1664	+ 45.8823	46.2856
151	+ 23.4812	23.5096	+ 30.2636	30.6638
152	+ 12.3056	12.3267	− 9.1412	8.7514
153	+ 11.2216	11.2490	− 9.4492	9.0522
154	+ 17.6041	17.6286	+ 20.1184	20.5166
155	+ 13.8266	13.8468	+ 10.6351	11.0409
156	+ 17.7557	17.7802	+ 36.4378	36.8379
157	+ 11.6720	11.6922	+ 5.5137	5.9161
158	+ 15.3039	15.3284	+ 25.0844	25.4834
159	+ 2.9484	2.9683	− 29.4972	29.1078
160	+ 8.5910	8.6118	+ 23.4860	23.8848
161	+ 5.6495	5.6785	+ 34.8962	35.2966
162	+ 1.3627	1.3816	− 25.1980	24.8015
163	+ 0.1386	0.1642	− 1.7114	1.3072
164	− 1.6419	1.6175	+ 15.1254	15.5241
165	− 7.9618	7.9370	+ 30.9841	31.3856
166	− 7.3144	7.2901	+ 22.9012	23.2990
167	− 5.3829	5.3640	− 3.4694	3.0558
168	− 4.6009	4.5830	− 20.5547	20.1530
169	− 15.0623	15.0376	+ 45.5413	45.9434
170	− 16.8011	16.7713	+ 37.0670	37.4608
171	− 16.1483	16.1290	+ 26.0874	26.4932
172	− 21.3263	21.3130	+ 54.3436	54.7497
173	− 18.9486	18.9218	+ 29.7772	30.1784
174	− 22.3850	22.3556	+ 39.6722	40.0712
175	− 9.6585	9.6390	− 22.1334	21.7324
176	− 25.6282	25.6009	+ 39.8818	40.2844
177	− 7.7029	7.6846	− 32.7038	32.3050
178	− 28.0044	27.9821	+ 33.1789	33.5863
179	− 22.7457	22.7230	+ 10.6820	11.0818
180	− 31.8640	31.8412	+ 28.3120	28.7158
181	− 26.6648	26.6394	+ 12.7756	13.1782
182	− 18.1331	18.1194	− 17.4504	17.0482
183	− 20.8176	20.7966	− 11.8031	11.4036
184	− 45.0289	45.0062	+ 31.8883	32.2965
185	− 43.2571	43.2322	+ 27.3988	27.8042

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 16. NO. 4.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
186	− 43.1466	43.1276	+ 22.0902	22.5004
187	− 26.2756	26.2550	− 11.0088	10.6038
188	− 36.1745	36.1524	+ 1.2454	1.6472
189	− 19.8036	19.7884	− 30.0690	29.6664
190	− 24.2328	24.2176	− 23.5059	23.1088
191	− 24.3488	24.3381	− 23.4440	23.0400
192	− 48.6698	48.6417	+ 11.4004	11.8090
193	− 37.1948	37.1751	− 8.5631	8.1603
194	− 56.1344	56.1100	+ 14.0466	14.4529
195	− 45.8113	45.8020	+ 0.3671	0.7694
196	− 24.0697	24.0554	− 28.8842	28.4810
197	− 33.6702	33.6444	− 16.7361	16.3350
198	− 52.3598	52.3456	+ 5.2572	5.6604
200	− 9.7721	9.7562	− 47.6468	47.2546
201	− 45.0629	45.0348	− 5.0638	4.6482
202	24.7140	24.6911	− 29.7332	29.3290
203	− 55.3954	55.3748	+ 4.4682	4.8758
205	− 51.1048	51.0760	− 2.7549	2.3567
206	− 41.7992	41.7800	− 14.1060	13.7046
207	48.7084	48.7019	− 6.8740	6.4631
209	36.3514	36.3418	− 21.1246	20.7277
212	− 57.0977	57.0758	− 2.8944	2.4924
214	− 44.5312	44.5115	− 16.8587	16.4452
215	− 49.1033	.....	− 12.5281	.....
217	− 43.2274	43.2094	− 21.2108	20.8032
223	− 23.0712	23.0588	− 42.5434	42.1440
227	− 31.6998	31.6954	− 39.6024	39.2039
228	− 38.4066	38.3922	− 35.5399	35.1317
232	− 35.6786	35.6623	− 38.4318	38.0246
242	− 61.1917	61.1763	− 37.9043	37.4980
250	− 19.6051	19.5977	− 55.3850	54.9862
266	− 45.4986	45.4876	− 58.2164	45.4876
	PLATE SEPT. 16. NO. 5.			
135	+ 26.7558	26.7516	− 54.5635	54.1822
144	+ 21.6597	21.6578	− 50.2385	49.8612
157	+ 55.6760	55.6784	− 21.3587	20.9729
162	+ 26.6294	26.6291	− 35.7189	35.3404
164	+ 53.0986	53.0924	− 5.1289	4.7462
165	+ 59.8813	59.8836	+ 10.5360	10.9246
166	+ 54.6062	54.6082	+ 4.3718	4.7572
168	+ 25.7154	25.7152	− 28.2040	27.8194
170	+ 57.9583	.....	+ 21.0966	.....
171	+ 50.6331	50.6434	+ 12.8728	13.2510
173	+ 51.2720	51.2772	+ 17.4648	17.8446
174	+ 55.8559	55.8573	+ 26.8820	27.2644
175	+ 21.0328	21.0322	− 25.7388	25.3554
176	+ 53.7234	53.7326	+ 29.3336	29.7126
177	+ 14.9106	14.9110	− 34.5847	34.1964
178	+ 47.2913	47.2978	+ 26.2985	26.6829

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 16. NO. 5.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
179	+ 35.0468	35.0509	+ 6.6922	7.0735
180	+ 41.1150	41.1244	+ 25.5954	25.9829
181	+ 33.7663	33.7720	+ 10.9415	11.3276
182	+ 18.3661	18.3664	− 16.4283	16.0482
183	+ 20.4788	20.4836	− 10.5366	10.1581
184	+ 34.3608	34.3665	+ 37.4514	37.8355
185	+ 32.4260	32.4363	+ 33.0199	33.4040
186	+ 28.7424	28.7520	+ 29.1982	29.5804
188	+ 18.8832	18.8858	+ 9.5229	9.9434
189	+ 8.2481	8.2502	− 24.1440	23.7570
190	+ 9.7681	9.7668	− 16.3797	15.9972
191	+ 9.7278	9.7326	− 16.2482	15.8652
192	+ 17.2750	17.2806	+ 25.5698	25.9543
193	+ 11.2165	11.2178	+ 3.3548	3.7393
194	+ 13.8799	13.8880	+ 32.7247	33.1090
195	+ 11.4654	11.4651	+ 15.7647	16.1493
196	+ 6.0784	6.0756	− 20.2831	19.9076
197	+ 7.9210	7.9124	− 4.9060	4.5170
198	+ 10.3110	10.3186	+ 23.8627	24.2458
199	+ 12.5130	12.5214	+ 46.6111	46.9963
200	+ 2.8608	2.8634	− 43.6525	43.2742
201	+ 8.1462	8.1528	+ 11.4028	11.7870
203	+ 7.6135	7.6204	+ 25.4456	25.8382
204	+ 5.8880	5.8909	+ 15.5457	15.9225
205	+ 5.5182	5.5243	+ 17.3032	17.6953
206	+ 4.0408	4.0408	+ 2.7072	3.0928
207	+ 4.2980	4.2969	+ 12.7074	13.0830
208	+ 3.9370	3.9371	+ 17.4214	17.8111
209	+ 2.9022	2.9068	− 6.1123	5.7328
211	+ 2.0978	2.1114	+ 54.7632	55.1491
212	+ 1.1975	1.2020	+ 21.4567	21.8416
213	+ 1.0074	.....	+ 23.4798	.....
214	+ 0.1630	0.1656	+ 2.7016	3.0905
215	+ 0.0119	0.0132	+ 9.0000	9.3844
216	− 2.8608	2.8590	+ 26.8028	27.1970
217	− 1.9877	1.9924	− 1.2900	0.9002
218	− 3.3936	3.3870	+ 12.8901	13.2766
219	− 9.6018	9.5964	+ 42.7336	43.1197
220	− 6.8624	6.8597	+ 3.4432	3.8268
221	− 13.8028	13.7938	+ 47.7784	48.1682
222	− 12.2459	12.2393	+ 34.0550	34.4434
223	− 2.9115	2.9106	− 30.6307	30.2470
224	− 16.0674	16.0604	+ 42.7092	43.0972
225	− 16.1004	16.0944	+ 33.0818	33.4751
226	− 17.2252	17.2164	+ 36.6852	37.0786
227	− 6.9007	6.9020	− 22.4408	22.0464
228	− 8.7520	8.7566	− 14.8183	14.4368
229	− 19.9530	19.9442	+ 32.1120	32.5003
230	− 23.9423	23.9272	+ 45.1835	45.5741
231	− 17.3456	17.3464	+ 17.6028	17.9824
232	− 8.8836	8.8824	− 18.7888	18.4002
233	− 20.2191	20.2132	+ 19.9558	20.3418
234	− 23.6500	23.6504	+ 6.6566	7.0386

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 16. NO. 5.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
235	− 24.7765	24.7732	+ 7.2684	7.6566
236	− 34.0148	34.0087	+ 28.5240	28.8991
237	− 40.3477	40.3434	+ 41.9668	42.3606
239	− 38.4691	38.4667	+ 26.8326	27.2240
240	− 49.5655	49.5622	+ 49.0366	49.4282
242	− 26.5008	26.5004	− 0.3366	+ 0.0500
243	− 8.9306	8.9336	− 37.4982	37.1019
245	− 49.1558	49.1480	+ 38.4076	38.7950
247	− 44.3446	44.3414	+ 24.9922	25.3840
250	− 9.5672	9.5655	− 42.1424	41.7528
252	− 17.1884	17.1854	− 32.0056	31.6212
258	− 39.3802	39.3864	− 9.5008	9.1174
259	− 40.2112	40.2118	− 8.5523	8.1614
260	− 39.7155	39.7148	− 9.5476	9.1522
261	− 62.1189	62.1191	+ 15.5574	15.9549
264	− 63.0124	63.0076	+ 14.7594	15.1563
265	− 29.9711	29.9706	− 23.0472	22.6572
266	− 29.8373	29.8354	− 25.7821	25.3952
267	− 63.5475	63.5486	+ 7.1351	7.5294
272	− 48.4295	48.4278	− 10.5402	10.1500
279	− 8.2589	8.2614	− 50.5065	50.1166
288	− 16.4512	16.4504	− 47.8091	47.4214
291	− 45.6256	45.6290	− 32.1440	31.7512
297	− 61.9838	61.9792	− 25.7888	25.4018
298	− 3.6802	3.6827	− 55.4448	55.0524
301	− 43.9786	43.9742	− 37.6165	37.2293
310	− 61.7982	61.8082	− 36.6036	36.2200
313	− 58.0005	57.9872	− 39.1876	38.7896
316	− 26.8860	26.8920	− 50.0654	49.6881
323	− 41.5800	41.5818	− 49.5986	49.2098
329	− 38.8906	38.8964	− 53.0706	52.6830
335	− 25.2078	25.2099	− 57.7330	57.3410
340	− 60.9745	60.9769	− 59.3676	58.9762
348	− 20.0948	20.0914	− 59.7127	59.3154
	PLATE SEPT 16. NO. 7.			
1	− 18.8382	18.8406	+ 8.2834	8.6841
2	− 21.3760	21.3782	− 4.8512	4.4541
4	− 15.4711	15.4752	+ 7.4778	7.8793
5	− 2.1054	2.1118	+ 49.6990	50.1058
6	− 26.7084	26.7077	− 31.5658	31.1638
7	− 20.3379	20.3436	− 13.3920	12.9996
8	− 12.9176	12.9240	+ 11.3128	11.7145
9	− 17.3550	17.3548	− 13.7498	13.3542
10	− 15.2167	15.2137	− 8.4016	8.0029
11	− 22.4018	22.4015	− 47.9596	47.5570
12	− 18.5761	18.5773	− 32.4268	32.0170
13	− 11.4222	11.4290	− 0.4362	0.0341
14	− 13.9665	13.9663	− 31.5594	31.1644
15	− 12.4708	12.4746	− 27.0086	26.6114

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TABLE II (cont'd).—Corrected Coördinates. Plate Sept. 16. No. 7.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
16	− 8.9241	8.9246	− 5.5923	5.1962
17	− 12.6956	12.6942	− 33.6197	33.2224
18	− 3.2656	3.2708	+ 29.1366	29.5410
19	− 15.0176	15.0194	− 53.1275	52.7328
20	− 4.6934	4.6943	− 20.6882	20.2938
21	− 5.0730	5.0729	− 27.5328	27.1324
22	− 6.6429	6.6430	− 59.2532	58.8592
24	− 0.9890	.....	− 50.8681	.....
25	+ 2.8989	2.8952	+ 12.2810	12.6780
27	+ 4.9404	4.9390	− 42.4090	42.0210
28	+ 4.1926	4.1922	+ 3.2042	3.6070
29	+ 6.5276	6.5251	+ 3.8932	4.2920
30	+ 11.7878	11.7912	− 48.8930	48.4960
31	+ 7.0133	7.0068	+ 7.4725	7.8720
32	+ 9.8024	9.8019	− 4.4569	4.0558
33	+ 10.8676	10.8610	− 6.0791	5.6813
34	+ 14.6702	14.6672	− 18.4018	18.0048
35	+ 21.0820	21.0846	− 44.3623	43.9679
36	+ 14.1650	14.1656	+ 6.0661	6.4653
37	+ 13.7698	13.7674	+ 10.8306	11.2271
38	+ 10.5315	10.5329	+ 25.6824	26.0826
39	+ 26.6402	26.6407	− 33.9540	33.5556
40	+ 21.9104	21.9058	− 13.3110	12.9034
41	+ 11.4886	11.4910	+ 26.6248	27.0264
42	+ 26.3417	26.3429	− 23.6627	23.2659
43	+ 9.3550	9.3516	+ 35.8224	36.2236
44	+ 36.5882	36.5868	− 52.1140	51.7162
45	+ 31.3968	31.3988	− 32.9504	32.5514
46	+ 21.0973	21.0940	+ 1.1181	1.5157
47	+ 8.6159	8.6108	+ 41.4743	41.8779
48	+ 38.6330	38.6318	− 46.5314	46.1325
49	+ 18.1619	18.1600	+ 13.9836	14.3871
50	+ 36.0627	36.0664	− 35.3811	34.9783
51	+ 37.7356	37.7322	− 35.4526	35.0422
52	+ 39.9622	39.9624	− 39.7066	39.3070
53	+ 36.7123	36.7128	− 29.3812	28.9838
54	+ 10.5039	10.4954	+ 39.8440	40.2439
55	+ 47.6131	47.6176	− 51.7351	51.3380
56	+ 28.5177	28.5155	− 2.5882	2.1860
57	+ 38.7108	38.7101	− 26.3965	25.9936
58	+ 49.7256	49.7384	− 48.7187	48.3232
59	+ 44.0340	44.0409	− 31.7508	31.3498
61	+ 36.0345	36.0254	+ 3.1652	3.5638
63	+ 34.3243	34.3185	+ 12.5400	12.9323
64	+ 56.2824	56.2924	− 20.5128	20.1082
66	+ 29.9394	29.9434	+ 21.8698	22.2693
67	+ 27.6829	27.6844	+ 26.1448	26.5447
69	+ 52.5511	52.5468	− 5.1760	4.7790
71	+ 43.3890	43.3918	+ 8.7686	9.1718
73	+ 51.6375	51.6294	+ 1.0824	1.4908
74	+ 40.9542	40.9546	+ 16.1880	16.5858
75	+ 36.9434	36.9390	+ 21.6216	22.0178
77	+ 53.5276	53.5324	+ 3.4193	3.8242

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 16. No. 7.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
82	+ 48.7732	48.7626	+ 14.7736	15.1700
83	+ 43.6940	43.6895	+ 19.9696	20.3683
85	+ 41.1560	41.1580	+ 24.1227	24.5296
89	+ 17.0550	17.0475	+ 48.1854	48.5850
93	+ 32.8566	32.8509	+ 37.9152	38.3134
116	+ 31.1983	31.1974	+ 51.0494	51.4577
121	+ 54.3714	54.3654	+ 48.2094	48.6175
123	+ 14.8274	14.8201	+ 59.0274	59.4326
124	+ 57.9290	57.9363	+ 50.1244	50.5359
367	− 11.8589	11.8678	+ 57.4660	57.8654
372	− 22.8159	22.8262	+ 51.9792	52.3684
373	− 19.2090	19.2096	+ 53.1984	53.5974
376	− 47.5470	47.5509	+ 38.8990	39.2919
381	− 15.6172	15.6208	+ 52.2308	52.6334
384	− 55.9852	55.9911	+ 23.9852	24.3880
387	− 47.5811	47.5843	+ 17.9438	18.3387
389	− 53.8706	53.8734	+ 4.4520	4.8468
390	− 44.5343	44.5404	+ 3.5482	3.9442
392	− 25.5188	25.5237	+ 21.7813	22.1790
393	− 62.6214	62.6224	− 37.5849	37.1984
395	− 34.4904	34.4977	− 1.6952	1.2965
397	− 38.3572	38.3583	− 10.1432	9.7478
398	− 52.2252	52.2310	− 35.4467	35.0542
399	− 39.7932	39.7940	− 13.2632	12.8746
401	− 39.1568	39.1581	− 19.4652	19.0668
402	− 46.1764	46.1778	− 33.5604	33.1652
403	− 41.7556	41.7606	− 26.9296	26.5356
404	− 44.7425	44.7493	− 33.1133	32.7206
405	− 26.2632	26.2652	+ 3.3128	3.7080
406	− 27.7569	27.7614	− 2.4660	2.0701
407	− 47.6794	47.6793	− 50.8394	50.4420
408	− 33.8526	33.8520	− 21.3134	20.9142
	PLATE SEPT. 18. No. 1.			
1	+ 51.0872	51.1030	+ 40.5292	40.9070
5	+ 9.5996	9.6109	+ 57.1426	57.5359
8	+ 48.0394	48.0442	+ 46.4413	46.8172
223	− 30.0206	30.0146	+ 56.4376	56.8430
242	− 60.2491	60.2434	+ 32.7548	33.1493
243	− 23.1498	.....	+ 50.4430	.....
250	− 18.4918	18.4804	+ 49.8200	50.2154
252	− 28.6027	28.6031	+ 42.1728	42.5649
258	− 51.0432	51.0442	+ 19.9080	20.2952
259	− 51.9852	51.9828	+ 19.0690	19.4660
260	− 50.9896	50.9879	+ 19.5738	19.9694
265	− 37.5197	37.5196	+ 29.3592	29.7554
266	− 34.7936	34.7864	+ 29.5057	29.8985
268	− 25.4572	25.4549	+ 37.9708	38.3658
272	− 49.9660	49.9654	+ 10.8552	11.2450
279	− 10.1321	10.1244	+ 51.1632	51.5469

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 18. NO 1.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
284	− 54.3229	54.3116	− 14.6022	14.2004
285	− 63.6306	63.6376	− 29.4106	29.0234
288	− 12.8038	12.7966	+ 42.9618	43.3531
291	− 28.3828	28.3795	+ 13.7432	14.1365
293	− 52.5138	52.5145	− 36.5061	36.1161
294	− 51.0504	51.0515	− 34.1392	33.7450
296	− 38.2610	38.2628	− 9.6030	9.2142
297	− 34.6711	34.6761	− 2.6394	2.2464
298	− 5.1970	5.1914	+ 55.7506	56.1454
300	− 37.8594	37.8602	− 16.6988	16.3142
301	− 22.9039	22.9024	+ 15.4068	15.7964
302	− 49.8380	49.8464	− 52.2218	51.8203
303	− 46.0750	.....	− 46.2396	.....
304	− 42.0172	42.0218	− 36.6658	36.2776
305	− 30.7772	30.7791	− 9.7484	9.3574
306	− 22.6808	22.6746	+ 7.4892	7.8786
307	− 30.3597	30.3546	− 13.0988	12.7064
308	− 43.8658	43.8719	− 49.3140	48.9098
310	− 23.8613	23.8608	− 2.4284	2.0405
312	− 30.5503	30.5562	− 26.4560	26.0570
313	− 21.2926	21.2892	+ 1.3952	1.7848
314	− 37.1314	37.1310	− 54.8958	54.5018
316	− 10.5086	10.5000	+ 32.5351	32.9174
317	− 21.6372	21.6358	− 22.0288	21.6435
319	− 14.9017	14.9029	+ 6.5057	6.8916
320	− 22.9626	22.9612	− 34.2410	33.8527
321	− 19.4962	19.4952	− 19.6396	19.2490
322	− 6.5015	6.4948	+ 40.9698	41.3604
323	− 10.9414	10.9342	+ 17.8469	18.2325
324	− 18.2934	18.2940	− 24.2840	23.8955
325	− 20.9050	20.9096	− 46.8950	46.5020
326	− 14.6248	14.6308	− 21.1973	20.8064
327	− 13.8732	13.8727	− 21.2400	20.8526
328	− 15.6512	15.6571	− 45.4306	45.0364
329	− 7.4679	7.4636	+ 20.5430	20.9254
330	− 14.9298	14.9387	− 51.8518	51.4716
331	− 8.4984	8.4966	− 0.8190	0.4332
332	− 9.2332	9.2340	− 18.2050	17.8158
333	− 8.3110	8.3158	− 51.0107	50.6305
335	− 2.8522	2.8444	+ 34.2293	34.6188
336	− 2.3555	2.3524	− 19.8532	19.4660
337	− 2.0458	2.0452	+ 9.4458	9.8364
338	− 2.3271	2.3272	+ 43.2223	43.6126
339	− 0.6746	0.6784	− 26.3619	25.9752
340	− 1.0963	1.0967	− 1.5152	1.1286
341	− 0.2682	0.2712	− 13.3354	12.9450
342	+ 0.9234	0.9251	− 31.8092	31.4134
343	+ 1.2356	1.2322	− 30.7173	30.3240
344	+ 1.7266	1.7258	− 27.3312	26.9478
345	+ 2.5608	2.5505	− 37.2018	36.8228
346	+ 2.0130	2.0112	− 26.1620	25.7762
347	+ 4.7908	4.7876	− 36.6382	36.2578
348	− 0.8932	0.8853	+ 39.3526	39.7414

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 18. NO. 1.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
349	+ 8.3126	8.3054	− 53.4792	53.0992
350	+ 4.9104	4.9130	− 16.6212	16.2378
351	+ 5.4543	5.4543	− 19.6230	19.2341
352	+ 11.0476	11.0348	− 58.9000	58.5229
353	+ 6.4678	6.4686	− 6.4914	6.1092
354	+ 9.8448	9.8377	− 26.0492	25.6680
355	+ 5.8626	5.8652	+ 6.8264	7.2091
356	+ 9.7807	9.7833	− 10.7416	10.3586
357	+ 13.2288	13.2251	− 18.6714	18.2877
358	+ 17.8920	17.8818	− 32.8733	32.4938
359	+ 16.4505	16.4530	− 26.2858	25.8954
360	+ 15.9956	15.9936	− 23.5141	23.1271
361	+ 17.0162	17.0098	− 26.9918	26.6080
362	+ 3.9288	3.9368	+ 35.9517	36.3440
363	+ 29.3452	29.3384	− 42.4928	42.1164
364	+ 25.1078	25.1043	− 26.8246	26.4424
365	+ 17.4982	17.5019	− 2.4393	2.0475
366	+ 24.4670	24.4668	− 21.4414	21.0492
367	+ 1.8588	1.8687	+ 47.3690	47.7530
368	+ 22.1443	22.1452	− 8.9832	8.5940
369	+ 30.4380	30.4397	− 28.8414	28.4700
370	+ 31.1376	31.1408	− 22.6260	22.2436
371	+ 41.4708	41.4684	− 46.7224	46.3396
372	+ 7.3854	7.3914	+ 36.4326	36.8194
373	+ 6.1466	6.1573	+ 40.0349	40.4200
374	+ 40.6238	40.6241	− 33.4214	33.0522
375	+ 35.4356	35.4385	− 21.5406	21.1621
376	+ 20.5329	20.5384	+ 11.7396	12.1256
377	+ 40.6403	40.6390	− 27.7157	27.3368
378	+ 32.5208	32.5185	− 10.0472	9.6641
379	+ 37.0346	37.0390	− 16.3330	15.9512
380	+ 37.9253	37.9204	− 16.6271	16.2392
381	+ 7.1038	7.1138	+ 43.6384	44.0226
382	+ 50.7064	50.7018	− 31.6866	31.3042
384	+ 35.4650	35.4714	+ 3.3488	3.7245
386	+ 59.0654	59.0662	− 18.7985	18.4284
387	+ 41.4974	41.4982	+ 11.7744	12.1547
389	+ 54.9990	55.0096	+ 5.5125	5.8880
390	+ 55.8886	55.8968	+ 14.8505	15.2324
392	+ 37.5956	37.6036	+ 33.8180	34.1901
405	+ 56.0694	56.0801	+ 33.1324	33.5062
	PLATE SEPT. 18. NO. 3.			
36	+ 53.7680	53.7700	− 47.3518	46.9740
43	+ 24.0156	24.0220	− 52.2470	51.8680
47	+ 18.3622	18.3693	− 52.9883	52.6072
49	+ 45.8382	45.8407	− 43.3820	42.9966
66	+ 37.9100	37.9170	− 31.6184	31.2382
67	+ 33.6438	.....	− 33.8895	.....
71	+ 50.9756	50.9780	− 18.1444	17.7510

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 18. No. 3.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
74	+ 43.5646	43.5730	− 20.5953	20.2066
75	+ 38.1358	38.1334	− 24.6232	24.2432
77	+ 56.3040	56.3044	− 7.9818	7.6008
82	+ 44.9632	44.9632	− 12.7786	12.3911
83	+ 39.7750	39.7745	− 17.8694	17.4836
85	+ 35.6212	35.6215	− 20.4152	20.0276
89	+ 11.6288	11.6320	− 44.5928	44.2054
93	+ 21.8586	21.8586	− 28.7564	28.3716
94	+ 50.8440	50.8403	+ 9.2836	9.6662
95	+ 42.1875	.....	+ 5.0942	.....
97	+ 40.1845	40.1816	+ 7.2949	7.6864
99	+ 47.3499	47.3421	+ 25.6618	26.0482
101	+ 34.8448	34.8470	+ 7.0399	7.4246
104	+ 41.7614	41.7604	+ 24.1720	24.5645
107	+ 30.9932	30.9914	+ 17.5190	17.9064
108	+ 22.0186	22.0194	− 1.3573	0.9711
109	− 32.6808	32.6780	+ 24.8001	25.1831
110	+ 20.6572	20.6602	− 4.3772	3.9908
111	+ 26.9640	26.9612	+ 13.2430	13.6296
112	+ 29.3972	22.3976	+ 2.3678	2.7519
113	+ 17.2979	17.2964	− 9.6272	9.2413
114	+ 32.9640	32.9586	+ 33.7378	34.1240
115	+ 21.1027	21.1021	+ 3.0355	3.4260
116	+ 8.7176	8.7204	− 30.4433	30.0604
117	+ 38.2216	38.2146	+ 54.7075	55.0848
118	+ 25.2220	25.2220	+ 17.8542	18.2396
120	+ 16.3014	16.3004	+ 6.8684	7.2503
121	+ 11.4958	11.4944	− 7.2698	6.8860
122	+ 23.2184	.....	+ 51.1056	.....
123	+ 0.7891	0.7930	− 46.8404	46.4623
124	+ 9.5702	9.5715	− 3.7118	3.3284
126	+ 13.0984	13.0987	+ 54.7851	55.1582
127	+ 3.8297	3.8266	+ 12.9184	13.2996
128	+ 1.8744	1.8710	+ 51.4697	51.8578
129	− 2.8693	2.8722	− 1.0812	0.6960
130	− 5.8804	5.8816	+ 18.6018	18.9832
131	− 6.0978	6.0982	+ 2.1085	2.4892
132	− 8.6471	8.6488	+ 3.2554	3.6373
133	− 10.7948	10.7935	+ 13.6937	14.0742
134	− 11.2076	11.2074	+ 16.5973	16.9771
135	− 5.6161	5.6103	− 34.7042	34.3239
136	− 19.2006	19.2014	+ 49.4440	49.8269
137	− 12.2412	12.2436	+ 2.6584	3.0370
138	− 19.5392	19.5421	+ 43.9902	44.3681
139	− 18.9068	18.9104	+ 17.0270	17.4104
140	− 33.8163	33.8198	+ 46.6371	47.0219
141	− 35.3182	35.3288	+ 33.8618	34.2428
142	− 45.4193	45.4308	+ 58.0519	58.4400
144	− 9.9295	9.9312	− 39.8144	39.4292
145	− 31.9748	31.9720	+ 14.8111	15.1937
147	− 33.5076	33.5124	+ 5.3642	5.7444
149	− 50.5990	50.6094	+ 32.1298	32.5118
151	− 48.0587	48.0586	+ 19.9658	20.3558

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 18. No. 3.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
155	− 40.9930	40.9914	− 0.7339	0.3510
157	− 38.9002	38.8962	− 5.8742	5.5020
158	− 50.1736	50.1708	+ 10.5246	10.8965
160	− 53.7892	53.7900	+ 4.6542	5.0289
161	− 63.9351	63.9383	+ 10.6533	11.0265
162	− 24.4620	24.4576	− 34.8828	34.4960
166	− 64.6186	64.6207	− 7.0142	6.6360
168	− 31.9726	31.9666	− 35.8104	35.4306
175	− 34.4343	34.4276	− 40.5101	40.1215
177	− 25.5656	25.5630	− 46.5978	46.2207
191	− 43.8686	43.8704	− 51.8283	51.4575
193	− 63.4980	63.4975	− 50.3934	50.0212
200	− 16.4606	16.4565	− 58.6358	58.2533
	PLATE SEPT. 21. No. 13.			
168	+ 40.7374	40.7348	− 53.7891	53.3973
175	+ 38.9916	38.9881	− 48.8108	48.4178
177	+ 28.4841	28.4814	− 51.1155	50.7282
182	+ 43.3709	.....	− 40.1566	.....
189	+ 30.7084	30.7044	− 38.9426	38.5406
190	+ 37.1034	37.1006	− 34.2826	33.8896
191	+ 37.1588	37.1610	− 34.1538	33.7638
193	+ 51.5833	51.5807	− 20.7932	20.3988
196	+ 31.7348	31.7344	− 34.6408	34.2501
197	+ 43.5440	.....	− 24.6095	.....
200	+ 13.4832	13.4803	− 49.5846	49.1836
201	+ 54.8188	54.8152	− 12.8133	12.4152
202	+ 30.8570	30.8530	− 34.0240	33.6324
204	+ 55.9687	55.9704	− 8.2422	7.8414
205	+ 56.9068	56.9124	− 6.7060	6.3079
206	+ 45.8828	45.8769	− 16.3910	16.0088
207	+ 52.8840	52.8901	− 9.2350	8.8371
209	+ 39.0602	39.0594	− 22.0860	21.6898
212	+ 56.5514	56.5614	− 0.7134	0.3222
214	+ 43.0410	43.0404	− 13.7654	13.3668
215	+ 47.2154	47.2158	− 9.0376	8.6328
217	+ 38.7446	38.7534	− 15.2246	14.8259
218	+ 47.3702	47.3759	− 3.8754	3.4844
220	+ 38.3900	38.3946	− 8.4361	8.0478
222	+ 55.2666	55.2746	+ 17.6612	18.0562
223	+ 18.1114	18.1112	− 36.1064	35.7076
224	+ 58.3590	58.3621	+ 26.6048	26.9924
225	+ 51.7870	51.7894	+ 19.5716	19.9634
226	+ 53.4114	53.4194	+ 22.9743	23.3646
227	+ 20.7594	20.7592	− 27.3799	26.9782
228	+ 24.5880	24.5885	− 20.5430	20.1420
229	+ 48.3008	48.3108	+ 21.4760	21.8694
230	+ 54.2602	54.2734	+ 33.7686	34.1561
231	+ 40.3388	40.3428	+ 9.0746	9.4721
232	+ 21.7892	21.7896	− 23.3670	22.9704

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 21. No. 13.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
233	+ 39.8346	39.8352	+ 12.7486	13.1442
234	+ 28.2674	28.2734	+ 5.3245	5.7250
235	+ 27.8595	27.8651	+ 6.5510	6.9488
236	+ 35.5368	35.5349	+ 28.4148	28.8020
237	+ 40.0476	.....	+ 42.5897	.....
238	+ 15.6550	15.6560	− 21.3372	20.9386
239	+ 31.1263	31.1348	+ 30.2021	30.5939
240	+ 38.0998	38.1021	+ 54.0202	54.4162
241	+ 13.1294	.....	− 25.5616	.....
242	+ 21.4224	21.4242	+ 2.1507	2.5496
243	+ 9.0324	9.0322	− 37.0384	36.6390
244	+ 29.6303	29.6314	+ 36.1991	36.5955
245	+ 31.1772	31.1835	+ 45.9528	46.3468
246	+ 32.9518	.....	+ 58.4804	.....
247	+ 25.5688	25.5728	+ 32.8476	33.2450
248	+ 19.8862	19.8868	+ 12.4562	12.8517
249	+ 7.3351	7.3365	− 29.8677	29.4716
250	+ 5.4082	5.4014	− 40.0166	39.6151
251	+ 12.7602	12.7616	+ 13.0493	13.4470
252	+ 6.7113	6.7116	− 27.4006	26.9994
253	+ 9.7004	9.7003	− 2.8544	2.4574
254	+ 10.3536	10.3515	+ 3.0103	3.4022
255	+ 13.7434	13.7516	+ 57.0316	57.4286
256	+ 11.8238	11.8328	+ 45.8258	46.2284
257	+ 7.1101	7.1069	+ 3.1040	3.4990
258	+ 5.7474	5.7471	+ 4.1912	4.5930
259	+ 5.7866	5.7870	+ 5.4528	5.8512
260	+ 5.4692	5.4696	+ 4.3884	4.7892
261	+ 6.1120	6.1192	+ 38.0188	38.4196
262	+ 5.4951	5.4956	+ 38.1748	38.5787
263	+ 4.1348	4.1348	− 7.3450	6.9469
264	+ 4.9204	4.9231	+ 38.0351	38.4331
265	+ 3.4340	3.4336	− 12.1436	11.7435
266	+ 1.6732	1.6721	− 14.2368	13.8379
267	− 0.6613	0.6570	+ 32.8179	33.2158
268	+ 1.4978	1.4981	− 26.8364	26.4336
269	+ 1.4012	1.4008	− 29.1205	28.7240
270	− 0.7465	0.7380	+ 9.9042	10.3046
271	− 2.8635	2.8542	+ 39.9532	40.3578
272	− 1.5971	1.5959	+ 9.5829	9.9842
273	− 4.3708	4.3662	+ 48.4881	48.8896
274	− 7.1324	7.1270	+ 55.4752	55.8764
275	− 4.5055	4.5042	+ 9.5006	9.9014
276	− 10.7655	10.7579	+ 42.6626	43.0610
277	− 14.4347	14.4326	+ 48.8226	49.2233
278	− 13.3209	13.3174	+ 40.7230	41.1262
279	+ 0.6634	0.6638	− 47.0355	46.6386
280	− 9.2320	9.2300	+ 11.5144	11.9123
281	− 12.6342	12.6300	+ 22.7702	23.1741
282	− 14.9968	14.9909	+ 33.6508	34.0485
283	− 19.6806	19.6749	− 50.8963	51.2977
284	− 17.2238	17.2180	+ 30.1359	30.5386
285	− 21.7048	21.6974	+ 47.0609	47.4643

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 21. NO. 13.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
286	− 19.9802	19.9776	+ 26.3237	26.7266
287	− 24.0476	24.0458	+ 38.0308	38.4405
288	− 3.4948	3.4944	− 39.4892	39.0878
289	− 21.0664	21.0670	+ 15.0732	15.4759
290	− 12.1276	12.1282	− 13.8026	13.4023
291	− 14.2172	14.2183	− 8.1602	7.7560
292	− 20.0848	20.0841	+ 7.7796	8.1820
293	− 34.4772	34.4756	+ 43.7651	44.1642
294	− 33.7440	33.7424	+ 41.0812	41.4858
296	− 24.5412	24.5391	+ 15.0042	15.4105
297	− 21.8918	21.8906	+ 7.6224	8.0220
298	+ 0.6682	0.6634	− 53.7726	53.3730
299	− 28.7886	28.7879	+ 20.3933	20.7888
300	− 30.0033	30.0002	+ 19.5522	19.9561
301	− 16.7379	16.7384	− 13.2837	12.8852
302	− 47.7825	47.7780	+ 52.5324	52.9375
304	− 41.7628	41.7556	+ 36.2212	36.6236
305	− 29.7553	29.7484	+ 9.6338	10.0360
306	− 22.6778	22.6772	− 8.0568	7.6539
307	− 32.4820	32.4829	+ 11.6061	12.0104
308	− 49.7404	49.7368	+ 46.1766	46.5822
309	− 12.6198	12.6196	− 29.9176	29.5158
310	− 29.1226	29.1210	− 0.4202	0.0150
311	− 20.8604	20.8602	− 16.5035	16.0968
312	− 42.1142	42.1146	+ 20.8529	21.2565
313	− 28.0818	28.0825	− 4.9084	4.5063
314	− 58.4192	58.4237	+ 45.0736	45.4869
316	− 12.6862	12.6866	− 34.0390	33.6423
317	− 44.9726	44.9746	+ 11.3278	11.7346
318	− 18.7774	18.7799	− 27.4978	27.0932
319	− 28.7107	28.7124	− 13.0676	12.6602
320	− 52.9871	52.9861	+ 20.6294	21.0372
321	− 44.6824	44.6820	+ 8.1312	8.5404
322	− 9.2537	9.2540	− 42.7338	42.3347
323	− 23.1222	23.1225	− 23.7017	23.2989
324	− 48.8966	48.8964	+ 10.4186	10.8299
325	− 63.6568	63.6488	+ 27.7688	28.1861
326	− 49.6936	49.6926	+ 5.1221	5.5292
328	− 23.5301	23.5298	− 28.0803	27.6776
331	− 38.4375	38.4342	− 12.7509	12.3452
332	− 50.6451	50.6364	− 0.3450	+ 0.0553
335	− 16.6698	16.6744	− 40.8040	40.3968
338	− 10.4554	10.4573	− 47.3340	46.9338
340	− 43.9979	44.0001	− 17.6751	17.2715
341	− 53.2004	53.1942	− 10.2203	9.8192
346	− 64.1320	64.1355	− 3.1328	2.7294
348	− 14.2658	14.2683	− 45.7265	45.3252
351	− 61.7017	61.7040	− 10.1001	9.6952
353	− 52.7975	52.7991	− 19.8146	19.4103
356	− 58.1662	58.1680	− 19.3300	18.9148
362	− 20.0388	20.0394	− 46.9327	46.5338
367	− 10.2786	10.2862	− 53.2129	52.8191
372	− 22.0499	22.0550	− 49.7942	49.3851

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 21. NO. 13.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
373	− 18.5731	18.5734	− 51.3606	50.9547
376	− 49.0776	49.0795	− 42.5412	42.1423
381	− 16.5942	16.5942	− 54.5088	54.1068
	PLATE SEPT. 21. NO. 15.			
1	− 49.1170	49.1191	+ 35.4701	35.8748
2	− 59.9066	59.9109	+ 27.5611	27.9565
5	− 8.6929	8.6945	+ 54.4890	54.8872
8	− 42.7124	42.7136	+ 33.6728	34.0684
9	− 63.0086	63.0112	+ 18.2944	18.6988
16	− 51.2698	51.2691	+ 18.5555	18.9614
18	− 23.5121	.....	+ 40.1790	.....
21	− 63.3538	63.3520	− 0.1557	+ 0.2364
23	− 53.6494	53.6536	+ 7.0812	7.4777
25	− 30.4464	30.4490	+ 23.6348	24.0334
26	− 21.2140	21.2206	+ 34.1179	34.5168
28	− 35.6628	35.6659	+ 16.1020	16.5046
31	− 30.6979	30.6994	+ 17.3088	17.7102
32	− 36.7512	36.7572	+ 6.6622	7.0572
33	− 37.0818	37.0789	+ 4.7561	5.1470
34	− 42.6627	42.6648	− 6.8674	6.4706
35	− 55.6002	55.6032	− 30.2710	29.8818
36	− 26.4013	26.4030	+ 11.4205	11.8160
37	− 23.4538	23.4543	+ 15.1789	15.5748
38	− 15.7433	15.7436	+ 28.2739	28.6723
39	+ 44.4588	44.4578	− 26.4164	26.0208
40	− 33.8928	33.8945	− 8.0510	7.6585
41	− 14.3978	14.3991	+ 28.3186	28.7134
42	− 37.6736	37.6768	− 18.6581	18.2623
43	− 9.7116	9.7121	+ 36.5194	36.9146
44	− 49.4924	49.4966	− 46.4935	46.0944
45	− 40.2691	40.2777	− 28.9062	28.5072
46	− 24.6770	24.6780	+ 3.0814	3.4746
47	− 6.4160	6.4169	+ 41.1723	41.5684
48	− 44.1898	44.1938	− 43.7860	43.3940
49	− 18.0964	18.0976	+ 14.5129	14.9122
50	− 38.5074	38.5084	− 33.8610	33.4614
51	− 37.3286	37.3262	− 35.0322	34.6425
52	− 38.5900	38.5977	− 39.6750	39.2830
53	− 33.9503	33.9548	− 29.9017	29.5046
54	− 6.1389	6.1372	+ 38.6876	39.0828
55	− 41.1358	41.1360	− 53.6956	53.3095
56	− 21.7540	21.7546	− 4.6776	4.2759
57	− 30.4551	30.4583	− 29.0637	28.6680
58	− 37.5420	37.5494	− 52.9124	52.5271
59	− 30.1878	30.1906	− 36.6012	36.2058
60	− 9.6236	9.6228	+ 8.4382	8.8362
61	− 12.3364	12.3380	− 5.5584	5.1592
62	− 2.9752	2.9750	+ 29.5213	29.9268

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 21. No. 15.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
63	− 7.2200	7.2226	+ 2.4791	2.8759
64	− 13.5704	13.5726	− 36.6890	36.2909
65	− 11.6972	11.7000	− 32.5688	32.1684
66	− 4.0866	4.0891	+ 12.2972	12.6930
67	− 2.8382	2.8424	+ 16.9664	17.3634
68	− 10.3191	10.3258	− 58.8944	58.4960
69	− 5.8828	5.8844	− 22.9036	22.5063
70	− 7.4811	7.4816	− 52.3900	51.9980
71	− 3.1284	3.1273	− 6.4482	6.0518
72	− 2.7294	2.7320	− 23.4406	23.0490
73	− 2.2998	2.2985	− 17.6877	17.2916
74	+ 0.1230	0.1223	+ 0.6444	1.0429
75	+ 0.8736	0.8724	+ 7.3556	7.7538
76	+ 1.2746	1.2740	+ 15.4330	15.8304
77	+ 0.6750	0.6750	− 17.2618	16.8617
78	+ 1.3156	1.3122	− 26.8139	26.4158
79	+ 2.0024	2.0024	− 0.8563	0.4587
80	+ 2.2510	2.2504	+ 14.4468	14.8477
81	+ 3.5559	3.5571	− 34.9872	34.5908
82	+ 4.8934	4.8938	− 5.7010	5.3017
83	+ 4.7031	4.7037	+ 1.5616	1.9602
84	+ 8.5974	8.5976	− 51.7160	51.3169
85	+ 5.6674	5.6666	+ 6.3335	6.7294
86	+ 10.0395	10.0376	− 51.6111	51.2112
87	+ 8.3657	8.3654	− 24.5523	24.1544
88	+ 8.0155	8.0138	− 4.0010	3.6052
89	+ 4.3340	4.3340	+ 40.3596	40.7545
90	+ 17.4270	17.4296	− 54.7114	54.3157
91	+ 14.4830	14.4812	− 28.8633	28.4624
92	+ 19.8084	19.8060	− 47.2958	46.9017
93	+ 8.9528	8.9510	+ 22.0888	22.4833
94	+ 17.0264	17.0286	− 25.0428	24.6474
95	+ 19.8668	19.8653	− 15.8566	15.4611
96	+ 27.9746	27.9745	− 51.2648	50.8710
97	+ 22.8413	22.8398	− 15.8961	15.5044
98	+ 32.2745	32.2779	− 50.2005	49.8024
99	+ 31.4007	31.4002	− 33.6478	33.2534
100	+ 13.4293	13.4296	+ 26.2734	26.6724
101	+ 26.2896	26.2862	− 11.8042	11.4066
102	+ 17.9090	17.9106	+ 15.9640	16.3664
103	+ 19.7212	19.7222	+ 11.8668	12.2680
104	+ 34.1121	34.1136	− 28.5478	28.1546
105	+ 25.0428	25.0444	+ 6.9076	7.3050
106	+ 14.0944	14.0930	+ 33.7752	34.1686
107	+ 36.5792	36.5824	− 16.1350	15.7392
108	+ 28.8884	28.8864	+ 3.3057	3.7031
109	+ 40.7564	40.7552	− 22.3410	21.9416
110	+ 27.6042	27.6060	+ 6.3598	6.7566
111	+ 36.1974	36.2004	− 10.2716	9.8811
112	+ 31.3543	31.3542	+ 0.4787	0.8776
113	+ 26.0592	26.0592	+ 12.3864	12.7829
114	+ 47.1002	47.1013	− 28.6269	28.2309
115	+ 32.7246	32.7249	+ 0.9786	1.3762

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 21. No. 15.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
116	+ 16.6670	16.6638	+ 32.8543	33.2490
117	+ 58.8743	58.8712	− 46.7780	46.3766
118	+ 40.7610	40.7621	− 12.1479	11.7510
119	+ 30.9871	30.9854	+ 10.4751	10.8746
120	+ 38.8041	38.8028	+ 1.8770	2.2706
121	+ 31.7298	31.7296	+ 15.0299	15.4228
123	+ 10.0631	10.0712	+ 49.8336	50.2216
124	+ 35.6393	35.6422	+ 14.0080	14.4061
125	+ 17.6350	17.6383	+ 39.8874	40.2914
127	+ 51.7340	51.7353	+ 6.8802	7.2768
129	+ 46.0528	46.0547	+ 21.3106	21.7104
131	+ 50.5770	50.5774	+ 21.5090	21.9046
132	+ 53.1680	53.1650	+ 22.5837	22.9834
135	+ 23.3148	23.3168	+ 46.2439	46.6392
137	+ 55.1732	55.1741	+ 25.6275	26.0228
144	+ 22.5190	22.5162	+ 52.8748	53.2692
392	− 44.8432	44.8477	+ 49.9100	50.3014
405	− 57.9398	57.9406	+ 36.8664	37.2674
406	− 62.9724	62.9662	+ 33.6474	34.0470
	PLATE SEPT. 16. No. 3.			
3	+ 9.3697	9.3726	− 18.7030	18.3611
28	+ 42.8042	42.8040	− 38.0598	37.7133
31	+ 41.7666	41.7622	− 30.3638	32.7178
36	+ 47.8024	47.8064	− 28.9814	28.6334
106	+ 26.9062	26.9136	+ 12.3054	12.6493
120	+ 59.6800	59.6915	+ 35.8446	36.1786
125	+ 20.9330	20.9354	+ 16.0600	16.4026
127	+ 55.1461	55.1614	+ 48.9532	49.2999
129	+ 40.5140	40.5286	+ 43.7813	44.1255
132	+ 39.4976	39.5076	+ 50.9374	51.2748
137	+ 36.5313	36.5389	+ 53.0639	53.4056
146	+ 2.9206	2.9324	+ 30.8645	31.2168
200	− 9.8013	9.7936	+ 12.7188	13.0734
202	− 24.7440	24.7374	+ 30.6388	30.9726
210	− 10.1188	10.1120	+ 11.3050	11.6540
212	− 57.1287	57.1174	+ 57.4817	57.8244
220	− 50.0330	50.0199	+ 39.0534	39.3976
242	− 61.2132	61.2088	+ 22.4656	22.8252
258	− 63.8062	63.8029	+ 6.8769	7.2290
259	− 65.0718	65.0702	+ 6.9504	7.3101
268	− 32.9440	32.9437	+ 1.5390	1.8940
310	− 60.4174	60.4167	− 28.1404	27.7928
313	− 55.8992	55.8966	− 27.2466	26.9017
353	− 41.8591	41.8638	− 52.4696	52.1254
356	− 42.5326	42.5285	− 57.8142	57.4752
405	+ 21.2274	21.2220	− 59.5734	59.2250

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TABLE II (cont'd).—CORRECTED COÖRDINATES. PLATE SEPT. 16. No. 6.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
62	+ 18.2387	18.2291	− 25.2614	24.8705
75	+ 36.1242	36.1118	− 38.9160	38.5349
82	+ 47.9462	47.9373	− 45.7803	45.3842
85	+ 40.3350	40.3263	− 36.4198	36.0237
100	+ 32.4818	32.4566	− 16.5029	16.1056
106	+ 27.8703	27.8518	− 10.5468	10.1505
125	+ 26.3182	26.2981	− 3.6577	3.2554
129	+ 59.7970	59.7790	+ 2.0127	2.4150
159	+ 24.1144	24.1005	+ 19.5648	19.9598
202	+ 4.4300	4.4178	+ 38.9974	39.4057
209	+ 2.3258	2.3072	+ 53.3235	53.7210
228	− 9.3321	9.3440	+ 44.6164	45.0224
242	− 27.0748	27.0846	+ 59.1022	59.4960
259	− 40.7872	40.7987	+ 50.8894	51.2789
268	− 21.9770	21.9916	+ 24.3042	24.7014
310	− 62.3798	62.4005	+ 22.8461	23.2304
313	− 58.5738	58.5843	+ 20.2616	20.6525
334	− 7.5679	7.5869	+ 1.6091	1.9964
384	− 56.8066	56.8177	− 36.5169	36.1368
389	− 54.7074	54.7160	− 56.0514	55.6719
390	− 45.3710	45.3752	− 56.9631	56.5660
405	− 27.0994	27.1084	− 57.2066	56.8152
	PLATE SEPT. 18. No. 2.			
62	+ 23.9657	23.9806	+ 17.1389	17.5390
75	+ 37.5768	.....	+ 35.0590	.....
82	+ 44.3961	44.4070	+ 46.9015	47.3125
83	+ 39.2008	39.2162	+ 41.8208	42.2120
100	+ 15.1702	15.1674	+ 31.3474	31.7576
162	− 25.0286	25.0230	+ 24.8081	25.2132
210	− 16.2461	16.2364	− 0.1773	+ 0.2328
228	− 45.8393	.....	− 10.6354	.....
242	− 60.2746	60.2636	− 28.4270	28.0264
259	− 52.0144	52.0034	− 42.1140	41.7146
313	− 21.3360	21.3260	− 59.8208	59.4102
334	− 2.8218	2.8068	− 8.7423	8.3371
338	− 2.3421	2.3320	− 17.9819	17.5749
362	+ 3.9080	.....	− 25.2496	.....
384	+ 35.4454	35.4567	− 57.8818	57.4850
389	+ 54.9946	55.0040	− 55.7276	55.3149
405	+ 56.0518	56.0628	− 28.1037	27.6941
	PLATE SEPT. 21. No. 14.			
2	− 59.7073	59.7107	− 32.5663	32.1804
3	− 17.3198	17.3265	− 9.9694	9.5829
4	− 46.9976	47.0042	− 27.5490	27.1664
18	− 23.3108	23.3180	− 19.9662	19.5798

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TABLE II (concl'd).—CORRECTED COÖRDINATES. PLATE SEPT. 21. NO. 14.

Star	X		Y	
	Big Image.	Middle Image.	Big Image.	Middle Image.
26	− 21.0058	21.0164	− 26.0338	25.6524
31	− 30.5139	30.5242	− 42.8440	42.4484
62	− 2.7642	2.7620	− 30.6336	30.2528
106	+ 14.2954	14.2904	− 26.3976	26.0116
112	+ 31.5544	31.5470	− 59.7102	59.3374
125	+ 17.8434	17.8404	− 20.2830	19.9001
129	+ 46.2562	46.2560	− 38.8734	38.4839
132	+ 53.3692	53.3657	− 37.6045	37.2248
137	+ 55.3697	55.3692	− 34.5576	34.1747
146	+ 41.3192	41.3098	− 12.5214	12.1264
159	+ 32.0012	31.9855	− 1.7626	1.3751
202	+ 30.7740	30.7736	+ 25.8800	26.2618
209	+ 38.9659	38.9681	+ 37.8184	38.1951
220	+ 38.3062	38.3002	+ 51.4702	51.8494
228	+ 24.4981	24.4904	+ 39.3548	39.7352
241	+ 13.0420	13.0418	+ 34.3242	34.7086
268	+ 1.3246	1.3122	+ 30.7547	31.1293
310	− 29.2275	29.2252	+ 59.4424	59.8372
313	− 28.1895	28.1880	+ 54.9412	55.3296
315	− 7.9484	7.9458	+ 18.3913	18.7778
351	− 61.8014	61.8019	+ 49.7312	50.1126
353	− 52.9036	52.9017	+ 40.0212	40.4080
356	− 58.2748	58.2734	+ 40.5111	40.8951
383	− 4.9366	4.9418	+ 2.2576	2.6451
387	− 63.4172	63.4166	+ 1.9674	2.3538
405	− 57.7422	57.7453	− 23.2644	22.8812
406	− 62.7648	62.7782	− 26.4875	26.1058

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The right ascensions and polar distances of the stars were determined from the measured coördinates according to the method given in Publication 1, Sec. IV, with one modification. Certain terms in the right ascension equation which are negligible for the 90° plates where the pole is very near the center, must be included for the 89° plates, where the pole is a degree from the center. Furthermore, since there is an obvious error in the last line on p. 27, the form given in the first equation for α on p. 28 is incorrect. The correct form and the one which has been used in the present investigation is given below, and with it is repeated for convenience the equation for polar distance.

$$\alpha = B - \tfrac{1}{2}\rho^2 \sin B'' \cos B'' \omega^2 \sin 1'' + \tfrac{1}{2}\xi\eta\omega^2 \sin 1'' + A\,,$$
$$\pi = p\omega - \tfrac{1}{2}p\rho^2 \cos^2 B'' \omega^2 \sin^2 1'' - \tfrac{1}{2}p(X^2 + Y^2)\omega^2 \sin^2 1'' \quad (1a)$$
$$+ \tfrac{1}{8}p^3\omega^3 \sin^2 1''\,.$$

Since the small terms in α are negligible in any case for the 90° plates, the equations which were used in the first paper, *i. e.*, equations (1), are correct as they stand.

The plate constants were determined according to the method of Secs. V to VII. The right ascensions and polar distances of the standard stars were taken from Elkin's Heliometer Triangulation of Stars in the Vicinity of the North Pole.* All of the stars in this work, twenty-four in number, were used with the exception of Polaris, the photographic images of which were not suitable for measurement. The companion of Polaris was obscured by the primary on every plate but one, namely, Sept. 21, no. 15. The following Table III, gives the polar coördinates of the standard stars together with their numbers in the final catalogue by means of which their rectangular coördinates may be taken from Table II.

* Transactions of Yale Observatory, Vol. I, part III.

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TABLE III.—Positions of Standard Stars.

Elkin.	No. in Cat.	Right Ascension.	N. P. D.	Annual P. M.	
				in R. A.	in N. P. D.
		h m s	″	″	″
α	2	3 38 22	4232.28		
β	14	13 9 27	5678.28	+ 2.310	+ 0.037
δ	47	41 26 32	1297.25		
ε	34	31 50 45	4875.66		
ζ	42	38 43 31	5337.53		
η	101	83 37 18	4585.10		
θ	104	84 57 29	5685.48		
ι	131	116 8 33	3728.37	− 1.8070	− 0.020
κ	161	153 39 40	5621.81		
λ	169	165 22 30	6306.18		
μ	184	183 35 19	6045.41	− 0.1320	− 0.076
ν	193	193 33 33	3718.88		
ξ	199	196 34 40	6297.54		
ο	239	227 49 25	5611.39		
π	261	243 28 12	5818.21		
ρ	266	246 46 54	2685.92		
σ	304	270 30 0	6296.23		
τ	305	270 45 47	4549.94		
υ	327	284 42 21	4961.27		
φ	340	293 55 50	3735.81	− 0.7560	+ 0.006
ψ	351	298 14 30	4843.32		
χ	386	330 15 7	6034.64		
ω	387	334 27 22	3953.79		

The apparent places of the standard stars referred to the equinox of 1888.0 were computed according to the method of Sec. VI. Proper motions were taken from the following sources: for β = Bradley 65 from Harvard Annals, Vol. XVIII, p. 283; for ι = Groom. 1119, and μ = Bradley 1672 from Green. Ten Year Catalogue 1890; for $\varphi = \lambda$ Ursae Majoris from the Berliner Jahrbuch. The plate constants were determined by a comparison with the apparent places computed by equations (1*a*), quoted above, using approximate values which could easily be found. Table IV which follows contains the constants for the eight 89° plates, and Table V contains their probable errors.

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TABLE IV.—PLATE CONSTANTS.

Plate.	Image.	Standard stars.	ξ	η	A	ω
			mm.	mm.	° ′ ″	″
Sept. 16	Big	$\alpha, \beta, \delta, \phi, \psi, \chi, \omega$.	− 1.4046	+ 60.9458	67 30 44	59.8572
no. 2	Mid.		− 1.3959	+ 61.3492	67 30 45	.8579
Sept. 16	Big	$\iota, \kappa, \lambda, \mu, \nu, \rho$.	− 0.9446	− 58.8603	67 29 59	.8617
no. 4	Mid.		− 0.9310	− 58.4621	67 30 24	.8598
Sept. 16	Big	$\mu, \nu, \xi, o, \pi, \rho, \phi$.	+ 1.1355	− 57.8153	112 38 24	.8606
no. 5	Mid.		+ 1.1323	− 57.4296	112 38 43	.8596
Sept. 16	Big	$\alpha, \beta, \delta, \epsilon, \zeta, \omega$.	+ 1.3521	+ 62.1408	112 37 46	.8551
no. 7	Mid.		+ 1.3466	+ 62.5421	112 37 34	.8519
Sept. 18	Big	$\rho, \sigma, \tau, \upsilon, \phi, \psi, \chi, \omega$.	− 2.8353	+ 60.5764	22 27 48	.8579
no. 1	Mid.		− 2.8232	+ 60.9637	22 28 23	.8566
Sept. 18	Big	$\delta, \eta, \theta, \iota, \kappa, \nu$.	− 2.2755	− 60.3089	22 29 17	.8574
no. 3	Mid.		− 2.2685	− 59.9306	22 28 52	.8538
Sept. 21	Big	$\nu, o, \pi, \rho, \sigma, \tau, \upsilon, \phi, \psi$.	+ 2.5529	− 58.7921	155 30 1	.8608
no. 13	Mid.		+ 2.5464	− 58.3941	155 30 29	.8604
Sept. 21	Big	$\alpha, \delta, \epsilon, \zeta, \eta, \theta, \iota$.	+ 2.2749	+ 61.2484	155 26 49	.8557
no. 15	Mid.		+ 2.2736	+ 61.6462	155 26 50	.8539

The numbers in the last column of Table V are the probable errors of the single determinations of polar distance for each plate, and $r \operatorname{cosec} \pi$ will be the probable error of one determination of right ascension for any star of polar distance π.

TABLE V.—PROBABLE ERRORS OF PLATE CONSTANTS.

Plate.	Im.	Probable error of			r_0
		ξ or η	ω	A	
		mm.	″	″	″
Sept. 16 no. 2	Big	± .0015	± .0012	± 4	± .141
	Mid.	.0015	.0012	4	.139
Sept. 16 no. 4	Big	.0015	.0011	4	.125
	Mid.	.0018	.0013	5	.153
Sept. 16 no. 5	Big	.0019	.0014	5	.179
	Mid.	.0019	.0014	5	.179
Sept. 16 no. 7	Big	.0022	.0018	6	.154
	Mid.	.0025	.0020	7	.172
Sept. 18 no. 1	Big	.0024	.0018	6	.206
	Mid.	.0022	.0017	6	.184
Sept. 18 no. 3	Big	.0018	.0015	5	.190
	Mid.	.0017	.0014	5	.176
Sept. 21 no. 13	Big	.0013	.0010	3	.127
	Mid.	.0011	.0008	3	.102
Sept. 21 no. 15	Big	.0019	.0016	5	.194
	Mid.	.0018	.0014	5	.174

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In determining the right ascensions and polar distances of the unknown stars the process employed was the reverse of that used for the standard stars and similar to that of Publication 1, Sec. VIII, in each detail with one exception in the case of annual aberration. Here a second step was necessary, since the formulas given on p. 32, Publication 1, have in the second member the quantities α_1 and π_1 which are supposed to be free from the effects of aberration, whereas these quantities as derived from the rectangular coördinates have been freed from the effects of refraction only. The following differential forms derived by Jacoby for a similar case give the necessary corrections. (Columbia Contributions, no. 21, p. 25.)

$$\alpha - \alpha_1 = \frac{2(\pi - \pi_1)(\alpha - \alpha_1)}{\pi},$$

$$\pi - \pi_1 = -\pi(\alpha - \alpha_1)^2 \sin^2 1''.$$

In combining the results from the eight plates into a single preliminary catalogue, each plate was given weight unity. The means of the separate results from the four 90° plates were treated as if they also were obtained from a single plate and were given weight unity in the final combination. The right ascensions and polar distances derived from each of the four 90° plates had previously been reduced to the mean standard of the four plates by the method described in Publication 1, Sec. X, pp. 68–72. Hereafter when reference is made to the 90° plate the mean result from the four plates is to be understood.

Table VI contains the preliminary catalogue. The first column contains the catalogue number, the second the number of plates upon which each star appears, the third the mean right ascension from all the plates, and the remaining nine columns the residuals in the sense plate minus mean. The corresponding values in polar distance are given on the opposite pages.

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TABLE VI.—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta a \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
1	5	1	45	54	+.17	−.05	.....	.....	+.05	−.34	.....	.....	+.19
2	4	3	38	14	−.08	+.10	.....	.....	−.15	.....	.....	.....	+.17
3	1	3	50	12	.00	.....	.....	.....	.....	.....	.....	.....	.....
4	3	5	12	44	+.26	−.12	.....	.....	−.12	.....	.....	.....	.....
5	5	5	41	53	+.13	−.04	.....	.....	+.31	−.42	.....	.....	+.02
6	2	5	46	31	.....	−.11	.....	.....	+.11	.....	.....	.....	.....
7	2	6	22	46	.....	−.09	.....	.....	+.12	.....	.....	.....	.....
8	5	6	36	31	+.16	−.03	.....	.....	+.08	−.52	.....	.....	+.33
9	3	8	33	24	.....	−.32	.....	.....	+.09	.....	.....	.....	+.23
10	2	9	10	4	.....	−.32	.....	.....	+.29	.....	.....	.....	.....
11	2	10	18	1	.....	+.13	.....	.....	−.13	.....	.....	.....	.....
12	1	10	32	54	.....	.....	.....	.....	.00	.....	.....	.....	.....
13	1	10	49	4	.....	.....	.....	.....	.00	.....	.....	.....	.....
14	2	13	9	31	.....	−.08	.....	.....	+.08	.....	.....	.....	.....
15	2	13	37	31	.....	−.03	.....	.....	+.03	.....	.....	.....	.....
16	3	13	45	15	.....	−.12	.....	.....	+.02	.....	.....	.....	+.08
17	2	14	6	30	.....	−.03	.....	.....	.00	.....	.....	.....	.....
18	3	14	9	49	−.01	.....	.....	.....	−.34	.....	.....	.....	+.36
19	1	14	23	59	.....	.....	.....	.....	.00	.....	.....	.....	.....
20	1	18	15	23	.....	.....	.....	.....	.00	.....	.....	.....	.....
21	3	18	20	59	.....	−.21	.....	.....	−.16	.....	.....	.....	+.34
22	1	18	43	33	.....	.....	.....	.....	.00	.....	.....	.....	.....
23	1	19	18	48	.....	.....	.....	.....	.....	.....	.....	.....	.00
24	1	21	18	1	.....	.....	.....	.....	.00	.....	.....	.....	.....
25	4	24	5	32	+.25	−.46	.....	.....	+.06	.....	.....	.....	+.18
26	2	24	6	32	+.25	.....	.....	.....	.....	.....	.....	.....	−.26
27	1	24	26	45	.....	.....	.....	.....	.00	.....	.....	.....	.....
28	4	25	7	52	+.53	−.15	.....	.....	−.17	.....	.....	.....	−.22
29	1	27	27	2	.....	.....	.....	.....	.00	.....	.....	.....	.....
30	1	27	51	56	.....	.....	.....	.....	.00	.....	.....	.....	.....
31	4	28	16	1	+.05	−.50	.....	.....	+.13	.....	.....	.....	.....
32	2	29	38	50	.....	.....	.....	.....	−.23	.....	.....	.....	+.23
33	2	30	21	33	.....	.....	.....	.....	−.10	.....	.....	.....	+.10
34	2	31	50	43	.....	.....	.....	.....	−.07	.....	.....	.....	+.07
35	2	32	59	51	.....	.....	.....	.....	−.19	.....	.....	.....	+.19
36	5	35	16	5	+.17	+.03	.....	.....	−.02	.....	−.44	.....	+.27
37	4	35	59	0	+.06	−.40	.....	.....	−.09	.....	.....	.....	+.42
38	4	36	24	40	+.04	−.19	.....	.....	+.11	.....	.....	.....	+.01
39	2	37	14	31	.....	.....	.....	.....	+.03	.....	.....	.....	−.03
40	2	37	42	20	.....	.....	.....	.....	−.02	.....	.....	.....	+.02
41	4	38	12	38	+.11	−.53	.....	.....	+.23	.....	.....	.....	+.16
42	2	38	43	36	.....	.....	.....	.....	−.05	.....	.....	.....	+.08
43	5	39	4	38	+.16	−.17	.....	.....	+.24	.....	−.49	.....	+.25
44	2	39	39	57	.....	.....	.....	.....	−.18	.....	.....	.....	+.18
45	2	40	2	32	.....	.....	.....	.....	−.20	.....	.....	.....	+.23

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TABLE VI.—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$								
			90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
1	5	3441.27	+.09	−.19	.....	.....	−.45	+.73	.....	.....	−.17
2	4	4232.27	−.15	+.02	.....	.....	−.06	.....	.....	.....	+.18
3	1	1356.20	.00	.....	.....	.....	.....	.....	.....	.....	.....
4	3	3420.51	+.52	−.30	.....	.....	−.21	.....	.....	.....	.....
5	5	768.55	−.42	−.08	.....	.....	+.13	−.02	.....	.....	+.40
6	2	5852.74	.....	+.27	.....	.....	−.26	.....	.....	.....	.....
7	2	4701.11	.....	+.01	.....	.....	−.01	.....	.....	.....	.....
8	5	3156.67	+.13	−.13	.....	.....	−.32	+.41	.....	.....	−.10
9	3	4675.09	.....	−.12	.....	.....	−.14	.....	.....	.....	+.25
10	2	4333.50	.....	+.18	.....	.....	−.18	.....	.....	.....	.....
11	2	6738.66	.....	+.59	.....	.....	−.59	.....	.....	.....	.....
12	1	5780.56	.....	.....	.....	.....	.00	.....	.....	.....	.....
13	1	3818.15	.....	.....	.....	.....	.00	.....	.....	.....	.....
14	2	5678.12	.....	+.05	.....	.....	−.06	.....	.....	.....	.....
15	2	5395.28	.....	+.29	.....	.....	−.28	.....	.....	.....	.....
16	3	4095.08	.....	−.11	.....	.....	+.17	.....	.....	.....	−.07
17	2	5788.53	.....	+.31	.....	.....	−.31	.....	.....	.....	.....
18	3	1988.54	+.10	.....	.....	.....	−.27	.....	.....	.....	+.17
19	1	6964.01	.....	.....	.....	.....	.00	.....	.....	.....	.....
20	1	4964.64	.....	.....	.....	.....	.00	.....	.....	.....	.....
21	3	5374.89	.....	+.27	.....	.....	−.07	.....	.....	.....	−.20
22	1	7275.93	.....	.....	.....	.....	.00	.....	.....	.....	.....
23	1	4654.92	.....	.....	.....	.....	.....	.....	.....	.....	.00
24	1	6758.87	.....	.....	.....	.....	.00	.....	.....	.....	.....
25	4	2976.90	+.17	−.22	.....	.....	+.08	.....	.....	.....	−.03
26	2	2140.48	−.05	.....	.....	.....	.....	.....	.....	.....	+.05
27	1	6254.01	.....	.....	.....	.....	.00	.....	.....	.....	.....
28	4	3522.70	+.32	+.12	.....	.....	−.04	.....	.....	.....	−.42
29	1	3490.55	.....	.....	.....	.....	.00	.....	.....	.....	.....
30	1	6666.59	.....	.....	.....	.....	.00	.....	.....	.....	.....
31	4	3279.90	+.46	−.18	.....	.....	−.18	.....	.....	.....	−.09
32	2	4008.12	.....	.....	.....	.....	−.02	.....	.....	.....	+.03
33	2	4112.62	.....	.....	.....	.....	+.05	.....	.....	.....	−.05
34	2	4875.94	.....	.....	.....	.....	+.19	.....	.....	.....	−.20
35	2	6473.08	.....	.....	.....	.....	+.14	.....	.....	.....	−.15
36	5	3431.23	+.40	−.07	.....	.....	−.02	.....	−.13	.....	−.19
37	4	3148.15	+.41	−.04	.....	.....	−.22	.....	.....	.....	−.16
38	4	2238.00	+.20	−.40	.....	.....	−.07	.....	.....	.....	+.26
39	2	5936.36	..	....	.....	.....	−.10	.....	.....	.....	+.10
40	2	4668.72	.....	.....	.....	.....	−.01	.....	.....	.....	.00
41	4	2197.85	+.03	−.16	.....	.....	+.01	.....	.....	.....	+.12
42	2	5337.19	.....	.....	.....	.....	+.17	.....	.....	.....	−.17
43	5	1633.19	+.05	+.02	.....	.....	+.05	.....	−.09	.....	−.02
44	2	7144.65	.....	.....	.....	.....	+.15	.....	.....	.....	−.15
45	2	5956.76	.....	.....	.....	.....	+.27	.....	.....	.....	−.28

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta\alpha \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
46	2	40	22	15	.....	.....	.....	.....	−.27	.....	.....	.....	+.27
47	5	41	26	35	+.08	+.01	.....	.....	+.02	.....	+.14	.....	−.25
48	2	41	27	46	.....	.....	.....	.....	−.40	.....	.....	.....	+.40
49	5	41	38	1	+.16	+.06	.....	.....	+.16	.....	−.40	.....	−.02
50	2	42	6	30	.....	.....	.....	.....	−.06	.....	.....	.....	+.03
51	2	42	57	48	.....	.....	.....	.....	+.03	.....	.....	.....	.00
52	2	43	17	0	.....	.....	.....	.....	+.16	.....	.....	.....	−.13
53	2	43	38	18	.....	.....	.....	.....	−.20	.....	.....	.....	+.17
54	4	44	28	28	+.15	−.01	.....	.....	−.10	.....	.....	.....	−.03
55	2	44	39	4	.....	.....	.....	.....	−.47	.....	.....	.....	+.43
56	2	45	14	23	.....	.....	.....	.....	−.10	.....	.....	.....	+.10
57	2	45	23	37	.....	.....	.....	.....	−.14	.....	.....	.....	+.14
58	2	46	6	59	.....	.....	.....	.....	−.04	.....	.....	.....	+.04
59	2	46	58	28	.....	.....	.....	.....	.00	.....	.....	.....	.00
60	1	52	33	7	.....	.....	.....	.....	.....	.....	.....	.....	.00
61	2	52	57	12	.....	.....	.....	.....	−.04	.....	.....	.....	+.04
62	2	55	44	59	+.21	.....	.....	.....	.....	.....	.....	.....	−.21
63	2	56	6	11	.....	.....	.....	.....	−.05	.....	.....	.....	+.05
64	2	56	9	27	.....	.....	.....	.....	+.06	.....	.....	.....	−.06
65	1	56	52	24	.....	.....	.....	.....	.....	.....	.....	.....	.00
66	5	57	50	51	+.07	+.06	.....	.....	−.06	.....	−.29	.....	+.25
67	4	58	38	53	−.01	.....	.....	.....	+.01	.....	−.27	.....	+.26
68	1	59	23	14	.....	.....	.....	.....	.....	.....	.....	.....	.00
69	2	59	48	8	.....	.....	.....	.....	−.26	.....	.....	.....	+.24
70	1	60	27	52	.....	.....	.....	.....	.....	.....	.....	.....	.00
71	3	60	45	19	.....	.....	.....	.....	+.02	.....	−.22	.....	+.22
72	1	61	58	5	.....	.....	.....	.....	.....	.....	.....	.....	.00
73	2	62	1	27	.....	.....	.....	.....	−.23	.....	.....	.....	+.23
74	4	63	16	54	−.18	.....	.....	.....	+.14	.....	−.11	.....	+.16
75	4	63	48	50	+.06	.....	.....	.....	−.08	.....	−.06	.....	+.06
76	1	64	1	51	.....	.....	.....	.....	.....	.....	.....	.....	.00
77	3	64	10	48	.....	.....	.....	.....	.00	.....	−.28	.....	+.28
78	1	64	44	15	.....	.....	.....	.....	.....	.....	.....	.....	.00
79	1	65	4	41	.....	.....	.....	.....	.....	.....	.....	.....	.00
80	1	65	15	46	.....	.....	.....	.....	.....	.....	.....	.....	.00
81	1	66	8	15	.....	.....	.....	.....	.....	.....	.....	.....	.00
82	4	67	35	12	+.08	.....	.....	.....	.00	.....	−.21	.....	+.17
83	4	67	39	56	+.19	.....	.....	.....	−.10	.....	−.20	.....	+.14
84	1	68	35	42	.....	.....	.....	.....	.....	.....	.....	.....	.00
85	4	68	52	8	+.05	.....	.....	.....	−.05	.....	−.02	.....	+.03
86	1	69	19	44	.....	.....	.....	.....	.....	.....	.....	.....	.00
87	1	69	26	15	.....	.....	.....	.....	.....	.....	.....	.....	.00
88	1	70	23	12	.....	.....	.....	.....	.....	.....	.....	.....	.00
89	5	70	48	0	+.14	.....	−.37	.....	+.29	.....	−.28	.....	+.23
90	1	72	50	57	.....	.....	.....	.....	.....	.....	.....	.....	.00

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TABLE VI (cont'd).— PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$								
			90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
46	2	3826.14	.....	.....	.....	.....	+.09	.....	.....	.....	−.09
47	5	1297.20	+.22	−.07	.....	.....	+.02	.....	+.04	.....	−.19
48	2	6864.29	.....	.....	.....	.....	+.17	.....	.....	.....	−.17
49	5	3039.63	+.01	+.09	.....	.....	−.07	.....	−.04	.....	+.03
50	2	6183.26	.....	.....	.....	.....	+.10	.....	.....	.....	−.11
51	2	6220.84	.....	.....	.....	.....	+.34	.....	.....	.....	−.34
52	2	6506.55	.....	.....	.....	.....	+.19	.....	.....	.....	−.19
53	2	5859.74	.....	.....	.....	.....	+.13	.....	.....	.....	−.12
54	4	1427.98	−.18	−.11	.....	.....	+.13	.....	.....	.....	+.17
55	2	7343.74	.....	.....	.....	.....	+.41	.....	.....	.....	−.41
56	2	4187.76	.....	.....	.....	.....	+.18	.....	.....	.....	−.17
57	2	5738.26	.....	.....	.....	.....	+.21	.....	.....	.....	−.22
58	2	7226.14	.....	.....	.....	.....	+.51	.....	.....	.....	−.50
59	2	6159.32	.....	.....	.....	.....	+.46	.....	.....	.....	−.47
60	1	3226.03	.....	.....	.....	.....	.....	.....	.....	.....	.00
61	2	4079.58	.....	.....	.....	.....	+.24	.....	.....	.....	−.23
62	2	1909.41	+.05	.....	.....	.....	.....	.....	.....	.....	−.05
63	2	3548.90	.....	.....	.....	.....	+.29	.....	.....	.....	−.30
64	2	5924.64	.....	.....	.....	.....	+.15	.....	.....	.....	−.14
65	1	5663.30	.....	.....	.....	.....	.....	.....	.....	.....	.00
66	5	2939.56	+.14	+.07	.....	.....	+.22	.....	−.30	.....	−.11
67	4	2652.74	+.08	.....	.....	.....	+.20	.....	−.18	.....	−.09
68	1	7216.55	.....	.....	.....	.....	.....	.....	.....	.....	.00
69	2	5046.00	.....	.....	.....	.....	+.13	.....	.....	.....	−.14
70	1	6812.77	.....	.....	.....	.....	.....	.....	.....	.....	.00
71	3	4049.68	.....	.....	.....	.....	+.35	.....	−.33	.....	−.01
72	1	5063.06	.....	.....	.....	.....	.....	.....	.....	.....	.00
73	2	4717.62	.....	.....	.....	.....	+.10	.....	.....	.....	−.10
74	4	3614.02	+.22	.....	.....	.....	+.16	.....	−.28	.....	−.10
75	4	3210.67	+.35	.....	... ...	.....	+.35	.....	−.82	.....	+.11
76	1	2726.66	.....	.....	.....	.....	.....	.....	.....	.....	.00
77	3	4684.80	.....	.....	.....	.....	+.21	.....	−.06	.....	−.16
78	1	5255.91	.....	.....	.....	.....	.....	.....	.....	.....	.00
79	1	3701.29	.....	.....	.....	.....	.....	.....	.....	.....	.00
80	1	2784.79	.....	.....	.....	.....	.....	.....	.....	.....	.00
81	1	5745.37	.....	.....	.....	.....	.....	.....	.....	.....	.00
82	4	3994.26	+.20	.....	.....	.....	+.27	.....	−.27	.....	−.21
83	4	3559.18	+.14	.....	.....	.....	+.33	.....	−.38	.....	−.10
84	1	6756.63	.....	.....	.....	.....	.....	.....	.....	.....	.00
85	4	3276.67	+.25	.....	.....	.....	+.32	.....	−.48	.....	−.10
86	1	6755.63	.....	.....	.....	.....	.....	.....	.....	.....	.00
87	1	5132.52	.....	.....	.....	.....	.....	.....	.....	.....	.00
88	1	3904.08	.....	.....	.....	.....	.....	.....	.....	.....	.00
89	5	1238.76	+.36	.....	−.26	.....	+.45	.....	−.65	.....	+.09
90	1	6983.98	.....	.....	.....	.....	.....	.....	.....	.....	.00

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta\alpha \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
91	1	73	6	31	.....	.....	.....	.....	.....	.....	.....	.....	.00
92	1	74	34	54	.....	.....	.....	.....	.....	.....	.....	.....	.00
93	5	75	0	17	+.32	.....	−.54	.....	−.03	.....	−.14	.....	+.40
94	2	75	5	56	.....	.....	.....	.....	.....	.....	−.10	.....	+.10
95	2	78	15	16	.....	.....	.....	.....	.....	.....	−.23	.....	+.23
96	1	78	17	5	.....	.....	.....	.....	.....	.....	.....	.....	.00
97	2	80	20	24	.....	.....	.....	.....	.....	.....	−.05	.....	+.07
98	1	80	29	29	.....	.....	.....	.....	.....	.....	.....	.....	.00
99	2	82	29	16	.....	.....	.....	.....	.....	.....	−.17	.....	+.20
100	2	83	5	16	.00	.....	.....	.....	.....	.....	.....	.....	.00
101	2	83	37	16	.....	.....	.....	.....	.....	.....	−.13	.....	+.11
102	1	84	28	5	.....	.....	.....	.....	.....	.....	.....	.....	.00
103	1	84	53	1	.....	.....	.....	.....	.....	.....	.....	.....	.00
104	2	84	57	26	.....	.....	.....	.....	.....	.....	+.03	.....	−.03
105	1	88	10	41	.....	.....	.....	.....	.....	.....	.....	.....	.00
106	2	88	43	32	+.11	.....	.....	.....	.....	.....	.....	.....	−.12
107	2	89	21	36	.....	.....	.....	.....	.....	.....	+.07	.....	−.10
108	2	90	7	14	.....	.....	.....	.....	.....	.....	−.14	.....	+.16
109	2	90	10	29	.....	.....	.....	.....	.....	.....	+.27	.....	−.27
110	2	90	13	30	.....	.....	.....	.....	.....	.....	−.17	.....	+.17
111	2	90	49	58	.....	.....	.....	.....	.....	.....	+.09	.....	−.12
112	3	91	1	52	+.06	.....	.....	.....	.....	.....	−.04	.....	−.02
113	2	91	24	54	.....	.....	.....	.....	.....	.....	−.18	.....	+.18
114	2	91	58	6	.....	.....	.....	.....	.....	.....	+.26	.....	−.23
115	2	92	16	4	.....	.....	.....	.....	.....	.....	−.02	.....	+.04
116	5	92	21	0	+.24	.....	−.44	.....	−.30	.....	+.22	.....	+.27
117	2	93	6	42	.....	.....	.....	.....	.....	.....	+.10	.....	−.07
118	2	93	8	13	.....	.....	.....	.....	.....	.....	+.12	.....	−.12
119	1	94	58	10	.....	.....	.....	.....	.....	.....	.....	.....	.00
120	4	97	5	0	−.26	.....	−.44	.....	.....	.....	+.22	.....	+.24
121	5	98	0	13	+.06	.....	−.24	.....	−.51	.....	+.42	.....	+.30
122	1	99	38	29	.....	.....	.....	.....	.....	.....	.00	.....	.....
123	5	100	1	26	+.43	.....	−.03	.....	−.30	.....	−.12	.....	+.02
124	5	100	44	47	+.27	.....	−.24	.....	−.46	.....	+.44	.....	+.02
125	2	101	19	21	.00	.....	.....	.....	.....	.....	.....	.....	.00
126	1	104	55	58	.....	.....	.....	.....	.....	.....	.00	.....	.....
127	4	107	49	10	+.29	.....	−.65	.....	.....	.....	+.15	.....	+.21
128	1	110	25	59	.....	.....	.....	.....	.....	.....	.00	.....	.....
129	4	113	12	10	−.03	.....	−.42	.....	.....	.....	+.51	.....	−.02
130	2	115	13	10	.....	.....	−.21	.....	.....	.....	+.18	.....	.....
131	4	116	8	40	−.14	.....	+.09	.....	.....	.....	+.31	.....	−.29
132	4	118	21	53	−.23	.....	−.14	.....	.....	.....	+.45	.....	−.09
133	1	119	11	38	.....	.....	.....	.....	.....	.....	.00	.....	.....
134	2	119	14	40	.....	.....	−.20	.....	.....	.....	+.18	.....	.....
135	5	120	18	56	+.10	.....	+.10	−.60	.....	.....	+.35	.....	+.06

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$								
			90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
91	1	5426.54	.....	.....	.....	.....	.....	.....	.....	.....	.00
92	1	6565.12	.....	.....	.....	.....	.....	.....	.....	.....	.00
93	5	2360.20	−.01	.....	+.28	.....	+.30	.....	−.53	.....	−.02
94	2	5223.14	.....	.....	.....	.....	.....	.....	−.29	.....	+.29
95	2	4716.57	.....	.....	.....	.....	.....	.....	−.25	.....	+.25
96	1	6891.66	.....	.....	.....	.....	.....	.....	.....	.....	.00
97	2	4761.43	.....	.....	.....	.....	.....	.....	−.43	.....	+.43
98	1	6891.71	.....	.....	.....	.....	.....	.....	.....	.....	.00
99	2	5924.52	.....	.....	.....	.....	.....	.....	−.26	.....	+.27
100	2	2179.08	−.06	.....	.....	.....	.....	.....	.....	.....	+.05
101	2	4585.44	.....	.....	.....	.....	.....	.....	−.01	.....	.00
102	1	2849.39	.....	.....	.....	.....	.....	.....	.....	.....	.00
103	1	3116.81	.....	.....	.....	.....	.....	.....	.....	.....	.00
104	2	5685.52	.....	.....	.....	.....	.....	.....	−.18	.....	+.19
105	1	3508.76	.....	.....	.....	.....	.....	.....	.....	.....	.00
106	2	1771.80	−.04	.....	.....	.....	.....	.....	.....	.....	+.05
107	2	5049.14	.....	.....	.....	.....	.....	.....	−.17	.....	+.16
108	2	3798.78	.....	.....	.....	.....	.....	.....	+.08	.....	−.09
109	2	5490.37	.....	.....	.....	.....	.....	.....	−.37	.....	+.37
110	2	3600.64	.....	.....	.....	.....	.....	.....	+.04	.....	−.05
111	2	4720.56	.....	.....	.....	.....	.....	.....	−.24	.....	+.23
112	3	4014.98	+1.03	.....	.....	.....	.....	.....	−.76	.....	−.28
113	2	3234.52	.....	.....	.....	.....	.....	.....	−.33	.....	+.34
114	2	5994.47	.....	.....	.....	.....	.....	.....	+.03	.....	−.03
115	2	4024.14	.....	.....	.....	.....	.....	.....	+.05	.....	−.04
116	5	1887.12	+.17	.....	−.12	.....	+.38	.....	−.43	.....	−.01
117	2	7282.10	.....	.....	.....	.....	.....	.....	−.41	.....	+.41
118	2	4942.84	.....	.....	.....	.....	.....	.....	−.36	.....	+.35
119	1	3473.50	.....	.....	.....	.....	.....	.....	.....	.....	.00
120	4	4154.93	−.36	.....	+.51	.....	.....	.....	−.27	.....	+.12
121	5	3262.89	+.24	.....	−.25	.....	+.34	.....	−.30	.....	−.04
122	1	6825.05	.....	.....	.....	.....	.....	.....	.00	.....	.....
123	5	809.18	+.17	.....	−.47	.....	+.65	.....	−.43	.....	+.09
124	5	3444.25	+.13	.....	−.18	.....	+.32	.....	−.24	.....	−.02
125	2	1556.79	+.09	.....	.....	.....	.....	.....	.....	.....	−.09
126	1	6934.39	.....	.....	.....	.....	.....	.....	.00	.....	.....
127	4	4382.62	+.21	.....	+.06	.....	.....	.....	−.28	.....	.00
128	1	6680.53	.....	.....	.....	.....	.....	.....	.00	.....	.....
129	4	3530.38	+.33	.....	−.11	.....	.....	.....	−.41	.....	+.20
130	2	4713.61	.....	.....	+.07	.....	.....	.....	−.07	.....	.....
131	4	3728.24	−.12	.....	+.13	.....	.....	.....	+.06	.....	−.09
132	4	3809.88	+.23	.....	+.26	.....	.....	.....	−.53	.....	+.06
133	1	4444.69	.....	.....	.....	.....	.....	.....	.00	.....	.....
134	2	4620.28	.....	.....	+.07	.....	.....	.....	−.06	.....	.....
135	5	1531.04	+.14	.....	+.13	+.07	.....	.....	−.43	.....	+.10

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A 1888.0			$\Delta a \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
136	1	121	21	11	.....	.....	.....	.....	.....	.....	.00	.....	.....
137	4	121	39	1	−.09	.....	.00	.....	.....	.....	+.34	.....	−.25
138	1	121	59	31	.....	.....	.....	.....	.....	.....	.00	.....	.....
139	2	124	46	18	.....	.....	−.21	.....	.....	.....	+.23	.....	.....
140	2	129	1	53	.....	.....	−.45	.....	.....	.....	+.45	.....	.....
141	2	131	57	26	.....	.....	−.35	.....	.....	.....	+.32	.....	.....
142	2	132	37	18	.....	.....	−.41	.....	.....	.....	+.41	.....	.....
143	1	133	1	5	.....	.....	.00	.....	.....	.....	.....	.....	.....
144	5	133	33	56	+.33	.....	+.10	−.75	.....	.....	+.64	.....	−.32
145	2	134	13	38	.....	.....	−.30	.....	.....	.....	+.30	.....	.....
146	1	136	29	42	.00	.....	.....	.....	.....	.....	.....	.....	.....
147	2	138	7	24	.....	.....	−.19	.....	.....	.....	+.17	.....	.....
148	1	138	15	33	.....	.....	.00	.....	.....	.....	.....	.....	.....
149	2	140	13	49	.....	.....	−.36	.....	.....	.....	+.36	.....	.....
150	1	140	36	36	.....	.....	.00	.....	.....	.....	.....	.....	.....
151	2	142	20	46	.....	.....	−.43	.....	.....	.....	+.43	.....	.....
152	1	142	52	48	.....	.....	.00	.....	.....	.....	.....	.....	.....
153	1	143	58	28	.....	.....	.00	.....	.....	.....	.....	.....	.....
154	1	144	28	47	.....	.....	.00	.....	.....	.....	.....	.....	.....
155	2	145	43	46	.....	.....	−.04	.....	.....	.....	+.06	.....	.....
156	1	146	33	58	.....	.....	.00	.....	.....	.....	.....	.....	.....
157	3	146	39	30	.....	.....	+.13	−.74	.....	.....	+.59	.....	.....
158	2	146	44	23	.....	.....	−.35	.....	.....	.....	+.35	.....	.....
159	2	150	30	42	+.04	.....	−.05	.....	.....	.....	.....	.....	.....
160	2	151	6	5	.....	.....	−.14	.....	.....	.....	+.14	.....	.....
161	2	153	39	30	.....	.....	+.03	.....	.....	.....	−.05	.....	.....
162	4	154	4	51	+.18	.....	+.21	−.81	.....	.....	+.43	.....	.....
163	1	156	43	1	.....	.....	.00	.....	.....	.....	.....	.....	.....
164	2	158	16	31	.....	.....	+.17	−.17	.....	.....	.....	.....	.....
165	2	162	9	43	.....	.....	+.29	−.29	.....	.....	.....	.....	.....
166	3	162	10	20	.....	.....	+.07	−.58	.....	.....	+.50	.....	.....
167	1	162	24	12	.....	.....	.00	.....	.....	.....	.....	.....	.....
168	5	163	25	6	+.25	.....	.00	−.48	.....	.....	+.30	−.08	.....
169	1	165	22	24	.....	.....	.00	.....	.....	.....	.....	.....	.....
170	2	167	4	8	.....	.....	+.31	−.34	.....	.....	.....	.....	.....
171	2	167	51	4	.....	.....	+.75	−.72	.....	.....	.....	.....	.....
172	1	167	52	8	.....	.....	.00	.....	.....	.....	.....	.....	.....
173	2	169	10	39	.....	.....	+.47	−.47	.....	.....	.....	.....	.....
174	2	169	57	16	.....	.....	+.23	−.23	.....	.....	.....	.....	.....
175	5	171	19	0	+.04	.....	+.45	−.44	.....	.....	+.86	−.94	.....
176	2	171	42	37	.....	.....	+.48	−.48	.....	.....	.....	.....	.....
177	5	172	39	15	−.08	.....	+.14	−.35	.....	.....	+.50	−.22	.....
178	2	174	4	22	.....	.....	+.22	−.20	.....	.....	.....	.....	.....
179	2	175	9	19	.....	.....	+.08	−.08	.....	.....	.....	.....	.....
180	2	177	13	30	.....	.....	+.22	−.19	.....	.....	.....	.....	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$								
			90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
			s	s	s	s	s	s	s	s	s
136	1	6634.10	.....	.....	.....	.....	.....	.....	.00	.....	.....
137	4	3802.28	+.17	.....	+.16	.....	.....	.....	−.28	.....	−.07
138	1	6314.87	.....	.....	.....	.....	.....	.....	.00	.....	.....
139	2	4722.49	.....	.....	+.36	.....	.....	.....	−.36	.....	.....
140	2	6663.00	.....	.....	+.28	.....	.....	.....	−.28	.....	.....
141	2	5963.29	.....	.....	+.39	.....	.....	.....	−.39	.....	.....
142	2	7530.94	.....	.....	+.50	.....	.....	.....	−.50	.....	.....
143	1	5422.97	.....	.....	.00	.....	.....	.....	.....	.....	.....
144	5	1297.90	+.36	.....	−.11	−.14	.....	.....	−.32	.....	+.20
145	2	4824.62	.....	.....	+.14	.....	.....	.....	−.15	.....	.....
146	1	2450.81	.00	.....	.....	.....	.....	.....	.....	.....	.....
147	2	4343.32	.....	.....	+.25	.....	.....	.....	−.25	.....	.....
148	1	6088.97	.....	.....	.00	.....	.....	.....	.....	.....	.....
149	2	6235.06	.....	.....	+.15	.....	.....	.....	−.16	.....	.....
150	1	6549.54	.....	.....	.00	.....	.....	.....	.....	.....	.....
151	2	5523.69	.....	.....	+.30	.....	.....	.....	−.30	.....	.....
152	1	3071.25	.....	.....	.00	.....	.....	.....	.....	.....	.....
153	1	3037.83	.....	.....	.00	.....	.....	.....	.....	.....	.....
154	1	4848.91	.....	.....	.00	.....	.....	.....	.....	.....	.....
155	2	4245.51	.....	.....	+.37	.....	.....	.....	−.37	.....	.....
156	1	5806.96	.....	.....	.00	.....	.....	.....	.....	.....	.....
157	3	3919.54	.....	.....	+.18	+.13	.....	.....	−.30	.....	.....
158	2	5111.14	.....	.....	+.44	.....	.....	.....	−.44	.....	.....
159	2	1766.22	+.27	.....	−.28	.....	.....	.....	.....	.....	.....
160	2	4956.66	.....	.....	+.17	.....	.....	.....	−.18	.....	.....
161	2	5626.78	.....	.....	+.08	.....	.....	.....	−.08	.....	.....
162	4	2013.98	+.26	.....	+.06	−.26	.....	.....	−.08	.....	.....
163	1	3417.47	.....	.....	.00	.....	.....	.....	.....	.....	.....
164	2	4425.78	.....	.....	−.13	+.13	.....	.....	.....	.....	.....
165	2	5392.96	.....	.....	−.14	+.14	.....	.....	.....	.....	.....
166	3	4907.01	.....	.....	+.16	+.29	.....	.....	−.46	.....	.....
167	1	3324.30	.....	.....	.00	.....	.....	.....	.....	.....	.....
168	5	2301.01	+.08	.....	−.07	+.07	.....	.....	+.21	−.29	.....
169	1	6306.05	.....	.....	.00	.....	.....	.....	.....	.....	.....
170	2	5820.30	.....	.....	−.34	+.33	.....	.....	.....	.....	.....
171	2	5165.76	.....	.....	+.28	−.27	.....	.....	.....	.....	.....
172	1	6886.11	.....	.....	.00	.....	.....	.....	.....	.....	.....
173	2	5414.66	.....	.....	+.14	−.15	.....	.....	.....	.....	.....
174	2	6036.96	.....	.....	+.19	−.19	.....	.....	.....	.....	.....
175	5	2259.70	+.13	.....	−.11	−.20	.....	.....	+.28	−.11	.....
176	2	6094.27	.....	.....	−.03	+.03	.....	.....	.....	.....	.....
177	5	1617.28	+.27	.....	+.06	−.30	.....	.....	+.12	−.16	.....
178	2	5745.32	.....	.....	−.17	+.16	.....	.....	.....	.....	.....
179	2	4364.62	.....	.....	+.08	−.07	.....	.....	.....	.....	.....
180	2	5540.09	.....	.....	−.12	+.12	.....	.....	.....	.....	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta\alpha \sin\pi$								
					90°	16 no. 2	16 no 4	16 no. 5	16 no 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
181	2	177	29	14	.....	.....	+.11	−.11	.....	.....	.....	.....	.....
182	4	180	26	28	+.05	.....	+.31	−.34	.....	.....	.....	−.03	.....
183	2	180	44	29	.....	.....	+.39	−.39	.....	.....	.....	.....	.....
184	2	183	35	25	.....	.....	+.09	−.09	.....	.....	.....	.....	.....
185	2	183	48	54	.....	.....	+.11	−.14	.....	.....	.....	.....	.....
186	2	185	13	44	.....	.....	+.22	−.19	.....	.....	.....	.....	.....
187	1	185	43	22	.....	.....	.00	.....	.....	.....	.....	.....	.....
188	2	188	7	47	.....	.....	−.04	+.04	.....	.....	.....	.....	.....
189	4	191	12	58	+.37	.....	+.46	−.27	.....	.....	.....	−.58	.....
190	4	191	16	36	+.16	.....	+.35	−.01	.....	.....	.....	−.48	.....
191	5	191	21	58	+.11	.....	+.11	−.24	.....	.....	+.32	−.30	.....
192	2	191	53	11	.....	.....	+.20	−.20	.....	.....	.....	.....	.....
193	5	193	33	28	+.05	.....	−.05	−.29	.....	.....	+.34	−.04	.....
194	2	194	48	34	.....	.....	+.14	−.14	.....	.....	.....	.....	.....
195	2	194	52	32	.....	.....	+.15	−.15	.....	.....	.....	.....	.....
196	4	195	34	52	+.31	.....	+.48	−.09	.....	.....	.....	−.72	.....
197	3	195	39	2	.....	.....	+.34	−.11	.....	.....	.....	−.21	.....
198	2	196	25	52	.....	.....	+.17	−.17	.....	.....	.....	.....	.....
199	1	196	34	39	.....	.....	.....	.00	.....	.....	.....	.....	.....
200	5	196	51	59	.00	.....	+.24	−.30	.....	.....	+.79	−.74	.....
201	3	197	5	20	.....	.....	+.04	+.16	.....	.....	.....	−.20	.....
202	3	197	9	8	+.36	.....	+.07	.....	.....	.....	.....	−.43	.....
203	2	198	23	10	.....	.....	+.10	−.12	.....	.....	.....	.....	.....
204	2	199	9	8	.....	.....	.....	+.06	.....	.....	.....	−.04	.....
205	3	199	30	38	.....	.....	+.31	+.29	.....	.....	.....	−.62	.....
206	3	200	9	24	.....	.....	+.25	.00	.....	.....	.....	−.23	.....
207	3	200	18	2	.....	.....	+.61	.00	.....	.....	.....	−.63	.....
208	1	200	43	12	.....	.....	.....	.00	.....	.....	.....	.....	.....
209	4	200	59	20	+.33	.....	+.24	.00	.....	.....	.....	−.60	.....
210	1	201	43	29	.00	.....	.....	.....	.....	.....	.....	.....	.....
211	1	202	17	14	.....	.....	.....	.00	.....	.....	.....	.....	.....
212	4	202	47	34	+.14	.....	+.28	−.12	.....	.....	.....	−.34	.....
213	1	202	55	17	.....	.....	.....	.00	.....	.....	.....	.....	.....
214	3	203	48	49	.....	.....	+.20	+.16	.....	.....	.....	−.36	.....
215	3	203	50	13	.....	.....	+.36	−.13	.....	.....	.....	−.25	.....
216	1	205	31	24	.....	.....	.....	.00	.....	.....	.....	.....	.....
217	3	206	4	26	.....	.....	+.70	−.06	.....	.....	.....	−.64	.....
218	2	206	30	35	.....	.....	.....	+.44	.....	.....	.....	−.44	.....
219	1	208	52	46	.....	.....	.....	.00	.....	.....	.....	.....	.....
220	3	210	18	32	+.07	.....	.....	+.14	.....	.....	.....	−.22	.....
221	1	210	49	28	.....	.....	.....	.00	.....	.....	.....	.....	.....
222	2	211	4	40	.....	.....	.....	+ 16	.....	.....	.....	−.14	.....
223	5	211	36	53	−.32	.....	−.02	+.19	.....	+.41	.....	−.27	.....
224	2	212	29	2	.....	.....	.....	+.36	.....	.....	.....	−.36	.....
225	2	213	31	18	.....	.....	.....	+.30	.....	.....	.....	−.32	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$ 90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
181	2	4558.98	.....	.....	+.16	−.17	.....	.....	.....	.....	.....
182	4	2687.05	+.22	.....	+.13	−.42	.....	.....	.....	+.06	.....
183	2	3061.13	.....	.....	+.02	−.02	.....	.....	.....	.....	.....
184	2	6045.46	.....	.....	−.08	+.09	.....	.....	.....	.....	.....
185	2	5756.56	.....	.....	+.11	−.11	.....	.....	.....	.....	.....
186	2	5470.48	.....	.....	+.19	−.18	.....	.....	.....	.....	.....
187	1	3246.20	.....	.....	.00	.....	.....	.....	.....	.....	.....
188	2	4176.67	.....	.....	−.03	+.03	.....	.....	.....	.....	.....
189	4	2066.79	+.30	.....	.00	−.30	.....	.....	.....	.00	.....
190	4	2540.48	+.12	.....	+.30	−.38.	.....	.....	.....	−.03	.....
191	5	2547.54	+.26	.....	+.42	−.14	.....	.....	−.72	+.19	.....
192	2	5091.96	.....	.....	+.07	−.08	.....	.....	.....	.....	.....
193	5	3718.97	+.05	.....	+.08	−.16	.....	.....	−.05	+.09	.....
194	2	5482.14	.....	.....	+.14	−.14	.....	.....	.....	.....	.....
195	2	4456.26	.....	.....	+.10	−.11	.....	.....	.....	.....	.....
196	4	2273.83	+.17	.....	+.41	−.24	.....	.....	.....	−.33	.....
197	3	3201.28	.....	.....	−.12	+.10	.....	.....	.....	+.02	.....
198	2	4928.95	.....	.....	−.17	+.17	.....	.....	.....	.....	.....
199	1	6297.57	.....	.....	.....	.00	.....	.....	.....	.....	.....
200	5	861.83	+.05	.....	+.04	−.29	.....	.....	+.44	−.26	.....
201	3	4173.84	.....	.....	−.07	−.21	.....	.....	.....	+.28	.....
202	3	2258.38	+.21	.....	+.35	.....	.....	.....	.....	−.55	.....
203	2	5009.06	.....	.....	+.03	−.02	.....	.....	.....	.....	.....
204	2	4410.22	.....	.....	.....	−.12	.....	.....	.....	+.11	.....
205	3	4514.47	.....	.....	−.01	−.11	.....	.....	.....	+.13	.....
206	3	3636.80	.....	.....	+.21	−.02	.....	.....	.....	−.20	.....
207	3	4236.12	.....	.....	+.19	−.64	.....	.....	.....	+.45	.....
208	1	4517.17	.....	.....	.....	.00	.....	.....	.....	.....	.....
209	4	3106.94	+.10	.....	+.39	−.60	.....	.....	.....	+.10	.....
210	1	811.18	.00	.....	.....	.....	.....	.....	.....	.....	.....
211	1	6750.56	.....	.....	.....	.00	.....	.....	.....	.....	.....
212	4	4756.18	−.30	.....	+.18	−.04	.....	.....	.....	+.18	.....
213	1	4877.39	.....	.....	.....	.00	.....	.....	.....	.....	.....
214	3	3634.03	.....	.....	+.24	−.14	.....	.....	.....	−.10	.....
215	3	4011.33	.....	.....	−.11	−.29	.....	.....	.....	+.41	.....
216	1	5082.95	.....	.....	.....	.00	.....	.....	.....	.....	.....
217	3	3400.32	.....	.....	+.04	−.12	.....	.....	.....	+.07	.....
218	2	4253.08	.....	.....	.....	−.19	.....	.....	.....	+.19	.....
219	1	6066.07	.....	.....	.....	.00	.....	.....	.....	.....	.....
220	3	3710.63	−.01	.....	.....	−.10	.....	.....	.....	+.12	.....
221	1	6397.42	.....	.....	.....	.00	.....	.....	.....	.....	.....
222	2	5570.86	.....	.....	.....	−.01	.....	.....	.....	+.01	.....
223	5	1657.65	+.35	.....	+.29	−.39	.....	−.01	.....	−.24	.....
224	2	6118.80	.....	.....	.....	.00	.....	.....	.....	.00	.....
225	2	5552.30	.....	.....	.....	−.04	.....	.....	.....	+.05	.....

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TABLE VI (cont'd).— PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta\alpha \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
226	2	213	46	19	.....	.....	.....	+.36	.....	.....	.....	−.36	.....
227	4	215	48	31	+.01	.....	+.50	−.14	.....	.....	.....	−.37	.....
228	4	215	53	28	+.08	.....	+.29	+.21	.....	.....	.....	−.57	.....
229	2	215	58	32	.....	.....	.....	+.40	.....	.....	.....	−.38	.....
230	2	216	26	34	.....	.....	.....	+.22	.....	.....	.....	−.22	.....
231	2	216	34	38	.....	.....	.....	+.23	.....	.....	.....	−.23	.....
232	4	217	21	23	+.30	.....	+.08	+.12	.....	.....	.....	−.50	.....
233	2	218	8	57	.....	.....	.....	+.21	.....	.....	.....	−.21	.....
234	2	223	49	56	.....	.....	.....	+.32	.....	.....	.....	−.32	.....
235	2	224	30	28	.....	.....	.....	+.16	.....	.....	.....	−.14	.....
236	2	224	54	50	.....	.....	.....	−.16	.....	.....	.....	+.14	.....
237	2	225	18	59	.....	.....	.....	+.09	.....	.....	.....	−.09	.....
238	1	226	31	21	.....	.....	.....	.....	.....	.....	.....	.00	.....
239	2	227	49	28	.....	.....	.....	+.16	.....	.....	.....	−.19	.....
240	2	228	6	40	.....	.....	.....	+.27	.....	.....	.....	−.24	.....
241	2	228	10	58	+.11	.....	.....	.....	.....	.....	.....	−.12	.....
242	5	228	28	51	−.08	.....	+.06	+.08	.....	+.15	.....	−.25	.....
243	4	229	25	29	−.24	.....	.....	+.32	.....	+.20	.....	−.28	.....
244	1	229	42	13	.....	.....	.....	.....	.....	.....	.....	.00	.....
245	2	230	19	14	.....	.....	.....	+.48	.....	.....	.....	−.45	.....
246	1	231	3	22	.....	.....	.....	.....	.....	.....	.....	.00	.....
247	2	231	31	0	.....	.....	.....	+.14	.....	.....	.....	−.11	.....
248	1	231	58	21	.....	.....	.....	.....	.....	.....	.....	.00	.....
249	1	236	26	9	.....	.....	.....	.....	.....	.....	.....	.00	.....
250	5	237	22	4	−.23	.....	+.01	+.23	.....	+.31	.....	−.32	.....
251	1	237	32	28	.....	.....	.....	.....	.....	.....	.....	.00	.....
252	4	238	14	44	−.11	.....	.....	+.30	.....	−.02	.....	−.17	.....
253	1	238	22	44	.....	.....	.....	.....	.....	.....	.....	.00	.....
254	1	238	27	6	.....	.....	.....	.....	.....	.....	.....	.00	.....
255	1	240	3	16	.....	.....	.....	.....	.....	.....	.....	.00	.....
256	1	240	30	53	.....	.....	.....	.....	.....	.....	.....	.00	.....
257	1	241	25	23	.....	.....	.....	.....	.....	.....	.....	.00	.....
258	4	242	43	22	−.18	.....	.....	+.41	.....	−.14	.....	−.09	.....
259	4	242	44	42	+.08	.....	.....	+.13	.....	+.08	.....	−.32	.....
260	3	242	58	50	.....	.....	.....	+.07	.....	−.07	.....	−.02	.....
261	2	243	28	14	.....	.....	.....	−.14	.....	.....	.....	+.17	.....
262	1	243	50	26	.....	.....	.....	.....	.....	.....	.....	.00	.....
263	1	243	53	6	.....	.....	.....	.....	.....	.....	.....	.00	.....
264	2	244	10	30	.....	.....	.....	−.06	.....	.....	.....	+.08	.....
265	4	244	34	42	−.11	.....	.....	+.24	.....	+.01	.....	−.15	.....
266	5	246	47	5	+.01	.....	+.01	+.35	.....	−.27	.....	−.13	.....
267	2	247	34	42	.....	.....	.....	−.11	.....	.....	.....	+.11	.....
268	3	247	35	41	−.07	.....	.....	.....	.....	+.17	.....	−.09	.....
269	1	247	56	12	.....	.....	.....	.....	.....	.....	.....	.00	.....
270	1	248	20	15	.....	.....	.....	.....	.....	.....	.....	.00	.....

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TABLE VI (cont'd).— PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$								
			90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
226	2	5776.84	.....	.....	.....	+.04	.....	.....	.....	−.05	.....
227	4	2185.51	+.13	.....	+.30	−.43	.....	.....	.....	.00	.....
228	4	2654.86	+.27	.....	+.30	−.45	.....	.....	.....	−.12	.....
229	2	5543.74	.....	.....	.....	−.06	.....	.....	.....	+.05	.....
230	2	6360.33	.....	.....	.....	+.20	.....	.....	.....	−.20	.....
231	2	4662.68	.....	.....	.....	−.31	.....	.....	.....	+.32	.....
232	4	2425.80	+.07	.....	+.22	−.05	.....	.....	.....	−.24	.....
233	2	4842.60	.....	.....	.....	−.08	.....	.....	.....	+.08	.....
234	2	4150.28	.....	.....	.....	+.09	.....	.....	.....	−.10	.....
235	2	4209.48	.....	.....	.....	−.15	.....	.....	.....	+.15	.....
236	2	5596.56	.....	.....	.....	+.15	.....	.....	.....	−.16	.....
237	2	6485.89	.....	.....	.....	−.45	.....	.....	.....	+.45	.....
238	1	2390.02	.....	.....	.....	.....	.....	.....	.....	.00	.....
239	2	5611.26	.....	.....	.....	+.05	.....	.....	.....	−.05	.....
240	2	7096.93	.....	.....	.....	+.06	.....	.....	.....	−.06	.....
241	2	2102.64	+.20	.....	.....	.....	.....	.....	.....	−.20	.....
242	5	3834.59	−.17	.....	+.10	−.23	.....	+.17	.....	+.11	.....
243	4	1374.02	+.21	.....	−.44	.....	.....	+.52	.....	−.31	.....
244	1	5929.39	.....	.....	.....	.....	.....	.....	.....	.00	.....
245	2	6516.76	.....	.....	−.14	.....	.....	.....	.....	+.14	.....
246	1	7269.19	.....	.....	.....	.....	.....	.....	.....	.00	.....
247	2	5672.97	.....	.....	−.03	.....	.....	.....	.....	+.03	.....
248	1	4405.96	.....	.....	.....	.....	.....	.....	.....	.00	.....
249	1	1771.32	.....	.....	.....	.....	.....	.....	.....	.00	.....
250	5	1153.67	+.27	.....	+.11	−.28	.....	+.23	.....	−.35	.....
251	1	4361.29	.....	.....	.....	.....	.....	.....	.....	.00	.....
252	4	1912.58	+.29	.....	.....	−.37	.....	+.27	.....	−.18	.....
253	1	3393.05	.....	.....	.....	.....	.....	.....	.....	.00	.....
254	1	3746.22	.....	.....	.....	.....	.....	.....	.....	.00	.....
255	1	6984.37	.....	.....	.....	.....	.....	.....	.....	.00	.....
256	1	6305.97	.....	.....	.....	.....	.....	.....	.....	.00	.....
257	1	3733.07	.....	.....	.....	.....	.....	.....	.....	.00	.....
258	4	3793.36	−.28	.....	.....	−.23	.....	+.49	.....	+.03	.....
259	4	3868.84	−.09	.....	.....	−.16	.....	+.24	.....	+.01	.....
260	3	3804.21	.....	.....	.....	−.12	.....	−.06	.....	+.18	.....
261	2	5818.24	.....	.....	.....	+.01	.....	.....	.....	−.02	.....
262	1	5826.46	.....	.....	.....	.....	.....	.....	.....	.00	.....
263	1	3099.19	.....	.....	.....	.....	.....	.....	.....	.00	.....
264	2	5817.20	.....	.....	.....	+.17	.....	.....	.....	−.18	.....
265	4	2811.28	−.06	.....	.....	−.02	.....	+.32	.....	−.25	.....
266	5	2686.10	−.02	.....	−.15	−.10	.....	+.44	.....	−.17	.....
267	2	5506.64	.....	.....	.....	−.03	.....	.....	.....	+.02	.....
268	3	1932.48	+.02	.....	.....	.....	.....	+.30	.....	−.31	.....
269	1	1795.55	.....	.....	.....	.....	.....	.....	.....	.00	.....
270	1	4136.04	.....	.....	.....	.....	.....	.....	.....	.00	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta\alpha \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
271	1	248	42	1	.....	.....	.....	.....	.....	.....	.....	.00	.....
272	3	249	3	45	.....	.....	.....	−.10	.....	+.18	.....	−.08	.....
273	1	249	14	54	.....	.....	.....	.....	.....	.....	.....	.00	.....
274	1	250	23	38	.....	.....	.....	.....	.....	.....	.....	.00	.....
275	1	251	28	43	.....	.....	.....	.....	.....	.....	.....	.00	.....
276	1	253	1	33	.....	.....	.....	.....	.....	.....	.....	.00	.....
277	1	254	30	41	.....	.....	.....	.....	.....	.....	.....	.00	.....
278	1	254	36	25	.....	.....	.....	.....	.....	.....	.....	.00	.....
279	5	254	56	46	−.37	−.42	.....	+.36	.....	−.09	.....	+.52	.....
280	1	255	4	30	.....	.....	.....	.....	.....	.....	.....	.00	.....
281	1	256	5	41	.....	.....	.....	.....	.....	.....	.....	.00	.....
282	1	256	17	24	.....	.....	.....	.....	.....	.....	.....	.00	.....
283	1	256	59	28	.....	.....	.....	.....	.....	.....	.....	.00	.....
284	2	258	4	38	.....	.....	.....	.....	.....	+.30	.....	−.32	.....
285	2	258	26	12	.....	.....	.....	.....	.....	+.10	.....	−.06	.....
286	1	260	21	29	.....	.....	.....	.....	.....	.....	.....	.00	.....
287	1	260	53	12	.....	.....	.....	.....	.....	.....	.....	.00	.....
288	5	262	59	9	−.22	+.11	.....	+.40	.....	−.16	.....	−.12	.....
289	1	263	15	20	.....	.....	.....	.....	.....	.....	.....	.00	.....
290	1	263	36	24	.....	.....	.....	.....	.....	.....	.....	.00	.....
291	4	263	51	32	−.18	.....	.....	+.72	.....	−.30	.....	−.22	.....
292	1	264	18	4	.....	.....	.....	.....	.....	.....	.....	.00	.....
293	2	265	21	48	.....	.....	.....	.....	.....	−.16	.....	+.16	.....
294	2	265	28	58	.....	.....	.....	.....	.....	−.09	.....	+.12	.....
295	1	265	29	32	.00	.....	.....	.....	.....	.....	.....	.....	.....
296	2	265	40	24	.....	.....	.....	.....	.....	+.02	.....	.00	.....
297	3	265	43	30	.....	.....	.....	+.29	.....	.00	.....	−.29	.....
298	5	266	14	6	−.18	+.19	.....	−.08	.....	+.14	.....	−.06	.....
299	1	267	6	7	.....	.....	.....	.....	.....	.....	.....	.00	.....
300	2	268	4	8	.....	.....	.....	.....	.....	.00	.....	+.02	.....
301	5	268	28	55	−.07	+.08	.....	+.38	.....	−.03	.....	−.34	.....
302	2	269	49	39	.....	.....	.....	.....	.....	−.11	.....	+.11	.....
303	1	270	24	30	.....	.....	.....	.....	.....	.00	.....	.....	.....
304	2	270	30	0	.....	.....	.....	.....	.....	−.06	.....	+.06	.....
305	2	270	46	0	.....	.....	.....	.....	.....	+.04	.....	−.07	.....
306	2	271	55	32	.....	.....	.....	.....	.....	+.07	.....	−.07	.....
307	2	271	56	55	.....	.....	.....	.....	.....	+.12	.....	−.12	.....
308	2	271	58	15	.....	.....	.....	.....	.....	−.41	.....	+.41	.....
309	1	273	10	37	.....	.....	.....	.....	.....	.....	.....	.00	.....
310	5	273	57	50	−.08	−.23	.....	+.40	.....	−.02	.....	−.10	.....
311	1	274	26	1	.....	.....	.....	.....	.....	.....	.....	.00	.....
312	2	274	45	52	.....	.....	.....	.....	.....	−.19	.....	+.22	.....
313	5	275	5	22	−.02	−.25	.....	+.23	.....	+.02	.....	−.02	.....
314	2	275	53	45	.....	.....	.....	.....	.....	−.28	.....	+.28	.....
315	1	276	25	19	.00	.....	.....	.....	.....	.....	.....	.....	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$								
			90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
271	1	5939.73	.....	.....	.....	.....	.....	.....	.....	.00	.....
272	3	4119.75	.....	.....	.....	−.29	.....	+.34	.....	−.04	.....
273	1	6455.18	.....	.....	.....	.....	.....	.....	.....	.00	.....
274	1	6884.80	.....	.....	.....	.....	.....	.....	.....	.00	.....
275	1	4129.25	.....	.....	.....	.....	.....	.....	.....	.00	.....
276	1	6145.37	.....	.....	.....	.....	.....	.....	.....	.00	.....
277	1	6542.06	.....	.....	.....	.....	.....	.....	.....	.00	.....
278	1	6052.71	.....	.....	.....	.....	.....	.....	.....	.00	.....
279	5	731.80	+.32	+.33	.....	−.24	.....	+.13	.....	−.53	.....
280	1	4286.98	.....	.....	.....	.....	.....	.....	.....	.00	.....
281	1	4986.46	.....	.....	.....	.....	.....	.....	.....	.00	.....
282	1	5652.74	.....	.....	.....	.....	.....	.....	.....	.00	.....
283	1	6720.11	.....	.....	.....	.....	.....	.....	.....	.00	.....
284	2	5473.84	.....	.....	.....	.....	.....	+.09	.....	−.10	.....
285	2	6521.14	.....	.....	.....	.....	.....	−.18	.....	+.18	.....
286	1	5291.05	.....	.....	.....	.....	.....	.....	.....	.00	.....
287	1	6031.51	.....	.....	.....	.....	.....	.....	.....	.00	.....
288	5	1230.50	+.10	+.34	.....	−.10	.....	+.13	.....	−.49	.....
289	1	4662.49	.....	.....	.....	.....	.....	.....	.....	.00	.....
290	1	2852.46	.....	.....	.....	.....	.....	.....	.....	.00	.....
291	4	3212.78	−.17	.....	.....	+.12	.....	+.18	.....	−.13	.....
292	1	4229.31	.....	.....	.....	.....	.....	.....	.....	.00	.....
293	2	6548.05	.....	.....	.....	.....	.....	+.28	.....	−.28	.....
294	2	6382.06	.....	.....	.....	.....	.....	+.17	.....	−.17	.....
295	1	329.24	.00	.....	.....	.....	.....	.....	.....	.....	.....
296	2	4726.12	.....	.....	.....	.....	.....	−.17	.....	+.16	.....
297	3	4256.54	.....	.....	.....	−.18	.....	+.25	.....	−.08	.....
298	5	340.70	−.06	+.59	.....	−.05	.....	+.02	.....	−.51	.....
299	1	5118.16	.....	.....	.....	.....	.....	.....	.....	.00	.....
300	2	5098.98	.....	.....	.....	.....	.....	−.04	.....	+.03	.....
301	5	2978.23	−.26	+.15	.....	−.13	.....	+.03	.....	+.22	.....
302	2	7334.60	.....	.....	.....	.....	.....	+.34	.....	−.34	.....
303	1	6918.38	.....	.....	.....	.....	.....	.00	.....	.....	.....
304	2	6296.22	.....	.....	.....	.....	.....	−.14	.....	+.15	.....
305	2	4549.76	.....	.....	.....	.....	.....	−.06	.....	+.05	.....
306	2	3411.91	.....	.....	.....	.....	.....	+.20	.....	−.20	.....
307	2	4727.60	.....	.....	.....	.....	.....	+.15	.....	−.16	.....
308	2	7041.16	.....	.....	.....	.....	.....	+.40	.....	−.40	.....
309	1	1971.86	.....	.....	.....	.....	.....	.....	.....	.00	.....
310	5	3995.34	+.04	−.04	.....	−.50	.....	+.30	.....	+.19	.....
311	1	2913.21	.....	.....	.....	.....	.....	.....	.....	.00	.....
312	2	5486.96	.....	.....	.....	.....	.....	+.39	.....	−.39	.....
313	5	3730.28	+.06	+.06	.....	−.16	.....	+.09	.....	−.07	.....
314	2	7230.50	.....	.....	.....	.....	.....	+.14	.....	−.14	.....
315	1	1228.87	.00	.....	.....	.....	.....	.....	.....	.....	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta a \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
316	5	277	2	0	−.02	−.11	.....	+.37	.....	−.14	.....	−.09	.....
317	2	279	35	20	.....	.....	.....	.....	.....	−.20	.....	+.18	.....
318	1	279	41	18	.....	.....	.....	.....	.....	.....	.....	.00	.....
319	2	279	47	54	.....	.....	.....	.....	.....	−.11	.....	+.11	.....
320	2	280	25	46	.....	.....	.....	.....	.....	−.03	.....	+.03	.....
321	2	280	40	12	.....	.....	.....	.....	.....	−.05	.....	+.07	.....
322	4	281	36	20	−.04	−.32	.....	.....	.....	−.01	.....	+.36	.....
323	5	281	36	25	−.08	−.23	.....	+.75	.....	−.20	.....	−.27	.....
324	2	282	4	42	.....	.....	.....	.....	.....	−.08	.....	+.05	.....
325	2	282	52	10	.....	.....	.....	.....	.....	−.26	.....	+.26	.....
326	1	284	11	6	.....	.....	.....	.....	.....	.00	.....	.....	.....
327	2	284	42	21	.....	.....	.....	.....	.....	.00	.....	.00	.....
328	1	285	30	34	.....	.....	.....	.....	.....	.00	.....	.....	.....
329	5	285	42	23	−.26	+.05	.....	+.22	.....	−.19	.....	+.18	.....
330	1	286	15	53	.....	.....	.....	.....	.....	.00	.....	.....	.....
331	2	287	5	5	.....	.....	.....	.....	.....	−.16	.....	+.16	.....
332	3	287	44	2	.....	+.07	.....	.....	.....	−.18	.....	+.14	.....
333	1	289	35	12	.....	.....	.....	.....	.....	.00	.....	.....	.....
334	1	291	38	16	.00	.....	.....	.....	.....	.....	.....	.....	.....
335	5	292	7	5	−.10	−.18	.....	+.22	.....	−.18	.....	+.26	.....
336	1	292	42	8	.....	.....	.....	.....	.....	.00	.....	.....	.....
337	1	293	10	44	.....	.....	.....	.....	.....	.00	.....	.....	.....
338	3	293	39	17	.00	.....	.....	.....	.....	−.58	.....	+.57	.....
339	1	293	47	11	.....	.....	.....	.....	.....	00	.....	.....	.....
340	5	293	55	40	+.11	+.04	.....	−.13	.....	−.05	.....	+.04	.....
341	3	294	20	1	.....	+.02	.....	.....	.....	−.18	.....	+.13	.....
342	1	294	41	52	.....	.....	.....	.....	.....	.00	.....	.....	.....
343	1	294	55	4	.....	.....	.....	.....	.....	.00	.....	.....	.....
344	1	295	19	51	.....	.....	.....	.....	.....	.00	.....	.....	.....
345	1	295	31	35	.....	.....	.....	.....	.....	.00	.....	.....	.....
346	3	295	33	33	.....	+.12	.....	.....	.....	−.22	.....	+.12	.....
347	1	296	51	5	.....	.....	.....	.....	.....	.00	.....	.....	.....
348	5	297	14	54	+.08	−.22	.....	+.25	.....	−.26	.....	+.14	.....
349	1	297	57	36	.....	.....	.....	.....	.....	.00	.....	.....	.....
350	1	298	4	2	.....	.....	.....	.....	.....	.00	.....	.....	.....
351	4	298	14	31	+.14	+.05	.....	.....	.....	+.05	.....	−.23	.....
352	1	299	0	22	.....	.....	.....	.....	.....	.00	.....	.....	.....
353	4	300	12	35	+.34	−.22	.....	.....	.....	−.26	.....	+.12	.....
354	2	300	40	16	.....	+.12	.....	.....	.....	−.15	.....	.....	.....
355	1	301	27	27	.....	.....	.....	.....	.....	.00	.....	.....	.....
356	4	302	20	41	+.19	.00	.....	.....	.....	+.02	.....	−.19	.....
357	1	303	46	53	.....	.....	.....	.....	.....	.00	.....	.....	.....
358	1	304	50	48	.....	.....	.....	.....	.....	.00	.....	.....	.....
359	2	304	51	16	.....	+.03	.....	.....	.....	−.05	.....	.....	.....
360	2	304	57	8	.....	+.02	.....	.....	.....	.00	.....	.....	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$ 90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
316	5	1759.18	−.16	+.40	.....	−.07	.....	+.02	.....	−.18	.....
317	2	5090.84	.....	.....	.....	.....	.....	+.10	.....	−.09	.....
318	1	2286.27	.....	.....	.....	.....	.....	.....	.....	.00	.....
319	2	3335.18	.....	.....	.....	.....	.....	+.26	.....	−.27	.....
320	2	5821.74	.....	.....	.....	.....	.....	+.24	.....	−.24	.....
321	2	4923.50	.....	.....	.....	.....	.....	+.14	.....	−.13	.....
322	4	1212.12	−.15	+.40	.....	.....	.....	+.11	.....	−.37	.....
323	5	2622.05	−.07	+.05	.....	+.18	.....	+.07	.....	−.21	.....
324	2	5182.51	.....	.....	.....	.....	.....	+.26	.....	−.26	.....
325	2	6543.34	.....	.....	.....	.....	.....	−.23	.....	+.23	.....
326	1	4964.68	.....	.....	.....	.....	.....	.00	.....	.....	.....
327	2	4961.06	.....	.....	.....	.....	.....	−.02	.....	+.01	.....
328	1	6411.01	.....	.....	.....	.....	.....	.00	.....	.....	.....
329	5	2430.73	−.05	+.21	.....	.00	.....	−.02	.....	−.14	.....
330	1	6788.39	.....	.....	.....	.....	.....	.00	.....	.....	.....
331	2	3709.08	.....	.....	.....	.....	.....	+.14	.....	−.15	.....
332	3	4749.89	.....	+.05	.....	.....	.....	+.14	.....	−.19	.....
333	1	6706.78	.....	.....	.....	.....	.....	.00	.....	.....	.....
334	1	502.74	.00	.....	.....	.....	.....	.....	.....	.....	.....
335	5	1593.84	−.28	+.11	.....	−.07	.....	+.29	.....	−.07	.....
336	1	4832.64	.....	.....	.....	.....	.....	.00	.....	.....	.....
337	1	3078.28	.....	.....	.....	.....	.....	.00	.....	.....	.....
338	3	1055.52	+.14	.....	.....	.....	.....	+.36	.....	−.50	.....
339	1	5223.72	.....	.....	.....	.....	.....	.00	.....	.....	.....
340	5	3735.63	−.06	−.22	.....	−.03	.....	+.05	.....	+.24	.....
341	3	4444.31	.....	−.05	.....	.....	.....	+.24	.....	−.18	.....
342	1	5552.44	.....	.....	.....	.....	.....	.00	.....	.....	.....
343	1	5487.95	.....	.....	.....	.....	.....	.00	.....	.....	.....
344	1	5287.07	.....	.....	.....	.....	.....	.00	.....	.....	.....
345	1	5880.00	.....	.....	.....	.....	.....	.00	.....	.....	.....
346	3	5217.73	.....	−.07	.....	.....	.....	+.23	.....	−.16	.....
347	1	5854.96	.....	.....	.....	.....	.....	.00	.....	.....	.....
348	5	1291.66	−.35	+.08	.....	−.01	.....	+.20	.....	+.10	.....
349	1	6877.70	.....	.....	.....	.....	.....	.00	.....	.....	.....
350	1	4661.40	.....	.....	.....	.....	.....	.00	.....	.....	.....
351	4	4843.21	−.46	+.09	.....	.....	.....	+.13	.....	+.23	.....
352	1	7217.67	.....	.....	.....	.....	.....	.00	.....	.....	.....
353	4	4069.50	−.09	+.01	.....	.....	.....	+.19	.....	−.11	.....
354	2	5257.42	.....	−.12	.....	.....	.....	+.12	.....	.....	.....
355	1	3275.37	.....	.....	.....	.....	.....	.00	.....	.....	.....
356	4	4351.60	−.04	−.02	.....	.....	.....	+.01	.....	+.07	.....
357	1	4856.29	.....	.....	.....	.....	.....	.00	.....	.....	.....
358	1	5745.98	.....	.....	.....	.....	.....	.00	.....	.....	.....
359	2	5341.66	.....	−.31	.....	.....	.....	+.31	.....	.....	.....
360	2	5173.86	.....	−.23	.....	.....	.....	+.24	.....	.....	.....

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TABLE VI (cont'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean R. A. 1888.0			$\Delta a \sin \pi$								
					90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		h	m	s	s	s	s	s	s	s	s	s	s
361	1	305	6	24	.....	.....	.....	.....	.....	.00	.....	.....	.....
362	4	307	21	12	+.21	−.34	.....	.....	.....	−.20	.....	+.34	.....
363	2	309	41	4	.....	−.16	.....	.....	.....	+.12	.....	.....	.....
364	2	310	3	15	.....	−.03	.....	.....	.....	+.03	.....	.....	.....
365	2	310	9	14	.....	−.15	.....	.....	.....	+.15	.....	.....	.....
366	1	310	43	41	.....	.....	.....	.....	.....	.00	.....	.....	.....
367	5	311	7	22	+.26	−.34	.....	.....	+.12	−.39	.....	+.36	.....
368	2	312	2	26	.....	+.04	.....	.....	.....	−.02	.....	.....	.....
369	2	312	44	9	.....	+.06	.....	.....	.....	−.06	.....	.....	.....
370	2	314	31	24	.....	−.08	.....	.....	.....	+.08	.....	.....	.....
371	2	314	47	2	.....	+.07	.....	.....	.....	−.03	.....	.....	.....
372	5	314	53	31	−.04	−.32	.....	.....	+.23	−.38	.....	+.52	.....
373	5	315	29	20	−.31	−.22	.....	.....	+.24	−.70	.....	+.98	.....
374	2	317	8	28	.....	+.12	.....	.....	.....	−.12	.....	.....	.....
375	2	317	17	52	.....	+.16	.....	.....	.....	−.18	.....	.....	.....
376	5	317	46	25	−.21	−.51	.....	.....	+.38	−.18	.....	+.51	.....
377	2	318	31	58	.....	−.12	.....	.....	.....	+.09	.....	.....	.....
378	2	318	52	16	.....	−.16	.....	.....	.....	+.16	.....	.....	.....
379	2	319	41	53	.....	−.02	.....	.....	.....	+.02	.....	.....	.....
380	2	320	7	40	.....	+.05	.....	.....	.....	−.02	.....	.....	.....
381	5	322	7	1	+.07	−.40	.....	.....	+.10	−.50	.....	+.74	.....
382	2	322	26	56	.....	−.12	.....	.....	.....	+.09	.....	.....	.....
383	1	324	28	59	.00	.....	.....	.....	.....	.....	.....	.....	.....
384	4	326	1	57	+.36	−.12	.....	.....	+.10	−.32	.....	.....	.....
385	1	328	6	35	.....	.00	.....	.....	.....	.....	.....	.....	.....
386	2	330	15	6	.....	+.12	.....	.....	.....	−.14	.....	.....	.....
387	4	334	27	24	−.13	−.13	.....	.....	+.02	+.23	.....	.....	.....
388	1	337	35	34	.....	.00	.....	.....	.....	.....	.....	.....	.....
389	4	338	39	32	+.37	−.14	.....	.....	+.05	−.32	.....	.....	.....
390	4	344	19	18	+.04	.00	.....	.....	−.09	+.02	.....	.....	.....
391	1	345	4	43	.....	.00	.....	.....	.....	.....	.....	.....	.....
392	5	348	36	4	+.18	−.32	.....	.....	−.08	−.43	.....	.....	+.67
393	2	349	47	40	.....	−.14	.....	.....	+.17	.....	.....	.....	.....
394	1	351	34	1	.....	.00	.....	.....	.....	.....	.....	.....	.....
395	2	353	4	3	.....	+.19	.....	.....	−.19	.....	.....	.....	.....
396	1	353	8	1	.....	.00	.....	.....	.....	.....	.....	.....	.....
397	2	353	37	37	.....	+.05	.....	.....	−.05	.....	.....	.....	.....
398	1	353	41	47	.....	.....	.....	.....	.00	.....	.....	.....	.....
399	2	353	47	56	.....	+.02	.....	.....	−.05	.....	.....	.....	.....
400	1	354	56	21	.....	.00	.....	.....	.....	.....	.....	.....	.....
401	2	356	1	50	.....	+.16	.....	.....	−.13	.....	.....	.....	.....
402	2	356	2	51	.....	.00	.....	.....	.00	.....	.....	.....	.....
403	2	356	37	9	.....	+.09	.....	.....	−.09	.....	.....	.....	.....
404	2	356	38	6	.....	+.31	.....	.....	−.28	.....	.....	.....	.....
405	5	357	12	20	−.02	−.23	.....	.....	−.15	−.04	.....	.....	+.40
406	4	358	7	15	+.36	−.23	.....	.....	−.19	.....	.....	.....	+.08
407	2	359	1	18	.....	+.04	.....	.....	−.07	.....	.....	.....	.....
408	2	359	33	22	.....	−.05	.....	.....	+.03	.....	.....	.....	.....

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TABLE VI (concl'd).—PRELIMINARY CATALOGUE.

Star	Number Plates	Mean N. P. D. 1888.0	$\Delta\pi$ 90°	16 no. 2	16 no. 4	16 no. 5	16 no. 7	18 no. 1	18 no. 3	21 no. 13	21 no. 15
		″	″	″	″	″	″	″	″	″	″
361	1	5390.72	.....	.....	.....	.....	.....	.00	.....	.....	.....
362	4	1542.46	−.46	+.48	.....	.....	.....	+.14	.....	−.18	.....
363	2	6478.64	.....	−.05	.....	.....	.....	+.05	.....	.....	.....
364	2	5507.34	.....	−.17	.....	.....	.....	+.18	.....	.....	.....
365	2	3977.84	.....	+.10	.....	.....	.....	−.11	.....	.....	.....
366	1	5188.78	.....	.....	.....	.....	.....	.00	.....	.....	.....
367	5	851.89	−.29	+.27	.....	.....	−.15	+.34	.....	−.19	.....
368	2	4438.12	.....	+.10	.....	.....	.....	−.11	.....	.....	.....
369	2	5725.42	.....	−.23	.....	.....	.....	+.23	.....	.....	.....
370	2	5393.14	.....	−.22	.....	.....	.....	+.23	.....	.....	.....
371	2	6962.54	.....	−.21	.....	.....	.....	+.20	.....	.....	.....
372	5	1581.62	−.11	+.09	.....	.....	−.08	+.09	.....	+.01	.....
373	5	1353.84	−.31	+.17	.....	.....	−.10	+.38	.....	−.15	.....
374	2	6212.38	.....	−.07	.....	.....	.....	+.08	.....	.....	.....
375	2	5435.92	.....	−.26	.....	.....	.....	+.27	.....	.....	.....
376	5	3252.78	+.06	+.19	.....	.....	−.52	+.09	.....	+.20	.....
377	2	5903.71	.....	−.19	.....	.....	.....	+.19	.....	.....	.....
378	2	4739.66	.....	−.28	.....	.....	.....	+.27	.....	.....	.....
379	2	5197.71	.....	−.17	.....	.....	.....	+.17	.....	.....	.....
380	2	5237.84	.....	+.02	.....	.....	.....	−.03	.....	.....	.....
381	5	1185.99	−.05	+.06	.....	.....	+.15	−.01	.....	−.17	.....
382	2	6396.76	.....	−.20	.....	.....	.....	+.19	.....	.....	.....
383	1	460.55	.00	.....	.....	.....	.....	.....	.....	.....	.....
384	4	4132.19	+.38	−.17	.....	.....	−.35	+.15	.....	.....	.....
385	1	4839.22	.....	.00	.....	.....	.....	.....	.....	.....	.....
386	2	6034.77	.....	+.01	.....	.....	.....	−.01	.....	.....	.....
387	4	3953.95	−.19	+.22	.....	.....	−.12	+.10	.....	.....	.....
388	1	5646.66	.....	.00	.....	.....	.....	.....	.....	.....	.....
389	4	4786.44	+.40	−.12	.....	.....	−.42	+.14	.....	.....	.....
390	4	4459.16	+.26	−.23	.....	.....	−.37	+.32	.....	.....	.....
391	1	7048.20	.....	.00	.....	.....	.....	.....	.....	.....	.....
392	5	2904.74	−.05	+.10	.....	.....	−.26	+.18	.....	.....	+.05
393	2	7095.32	.....	+.50	.....	.....	−.49	.....	.....	.....	.....
394	1	4156.97	.....	.00	.....	.....	.....	.....	.....	.....	.....
395	2	4383.43	.....	+.05	.....	.....	−.05	.....	.....	.....	.....
396	1	6502.08	.....	.00	.....	.....	.....	.....	.....	.....	.....
397	2	4938.10	.....	+.32	.....	.....	−.32	.....	.....	.....	.....
398	1	6665.37	.....	.....	.....	.....	.00	.....	.....	.....	.....
399	2	5143.24	.....	+.20	.....	.....	−.19	.....	.....	.....	.....
400	1	5114.04	.....	.00	.....	.....	.....	.....	.....	.....	.....
401	2	5453.80	.....	−.11	.....	.....	+.10	.....	.....	.....	.....
402	2	6396.74	.....	+.05	.....	.....	−.06	.....	.....	.....	.....
403	2	5923.66	.....	+.03	.....	.....	−.04	.....	.....	.....	.....
404	2	6335.08	.....	+.28	.....	.....	−.27	.....	.....	.....	.....
405	5	3889.77	+.19	−.09	.....	.....	−.07	+.08	.....	.....	−.09
406	4	4241.30	+.28	−.11	.....	.....	−.13	.....	.....	.....	−.02
407	2	7372.48	.....	+.64	.....	.....	−.64	.....	.....	.....	.....
408	2	5421.18	.....	+.26	.....	.....	−.27	.....	.....	.....	.....

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III.

INTER-ADJUSTMENT OF THE PLATES.

The process next entered upon is the inter-adjustment of the results obtained from the different plates. Since the problem in question is similar to that discussed by Jacoby in the paper already referred to (Col. Con. no. 21), where the south polar plates are treated, the method devised by him will be followed here. A full statement of the problem is given on p. 7 of the above paper, and the method of solution on pp. 68–75. Its application in the present case is as follows. The right ascensions and polar distances of the unknown stars upon any plate depend fundamentally upon the standard stars which appear upon that plate. For the 89° plates the number of standard stars on each plate varies from six to nine, and on the average four of these appear on two adjacent plates. Thus it may be expected, that, since the common data are so few, the agreement between the α's and π's of any particular star as found on two plates will not necessarily be very close. The largest actual residual from the mean in Table VI is $1''.03$. Only ten residuals are greater than $0''.75$, and but twenty-five lie between $0''.60$ and $0''.75$.

The adjustment of these differences is carried out by means of equations (2), Publication 1. These may be written in a more convenient form without impairing the correctness of their derivation by assuming that the X axis points to the vernal equinox, thus replacing the angle B by a. They then read:

$$\begin{aligned} \omega \sin a\, d\xi - \omega \cos a\, d\eta + p\, dA' + (\alpha - \alpha') \sin \pi &= 0, \\ -\omega \cos a\, d\xi - \omega \sin a\, d\eta + p\, d\omega + (\pi - \pi') &= 0. \end{aligned} \tag{2}$$

These equations are general in their application. They express the relation of small changes in the constants $d\xi$, $d\eta$, dA' and $d\omega$ to changes in the corresponding α's and π's without regard to the cause of the change. If the changes in the α's and π's of a sufficient number of stars arising from the same cause are known, the quantities $d\xi$, $d\eta$, dA' and $d\omega$ may be obtained by the method of least squares. If on the other hand these corrections are known, the corrections $\Delta\alpha$ and $\Delta\pi$ to the positions of the stars may be computed. In the present case the quantities $d\xi$, etc., represent corrections to the plate constants of one plate which are required to adjust the α's and π's of the stars on that plate to a closer agreement with the α's and π's of

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the same stars when found on an adjacent plate. They are obtained by a least squares solution of equations (2) in which the quantities $(\alpha - \alpha')\sin\pi$ and $(\pi - \pi')$ are the differences in right ascension and polar distance of all the stars, standard and unknown, common to the two plates in question. Their numerical values are taken from the original α's and π's of which Table VI contains the means. Hence the X axis points to the equinox of 1888.0 and the α's and π's are the mean places for the same epoch. Each pair of adjacent plates will furnish such a set of corrections to their plate constants, and there will be eight combinations of the 89° plates one with another. There will also be eight combinations of the 90° plate with each of the 89° plates, making sixteen combinations in all. The results of these least squares determinations are found in Table VII which follows. The numbers in the first column designate the plates which are included in each comparison. The number of equations involved in the least squares solution stands in the second column. It is equal to twice the number of stars common to the two plates. The remaining columns give the corrections $d\xi$, $d\eta$, dA' and $d\omega$ to the plate constants. For example, in the first comparison the values inserted in equations (2) are in the sense plate 16–2 minus 16–7. Hence if the corrections in the first line of Table VII are substituted in equations (2) they will give the corrections to be added to the results of plate 16–2 in order to secure closer agreement with 16–7.

TABLE VII.—INTER-COMPARISON OF PLATES.

Plates.	No. eq.	$d\xi$	$d\eta$	da'	$d\omega$
		mm.	*mm.*	*″*	*″*
16 no. 7 and 16 no. 7	90	− .0025	− .0065	− .0036	− .0055
16 no. 7 and 21 no. 15	122	− .0033	+ .0036	+ .0066	− .0034
21 no. 15 and 18 no. 3	82	− .0024	+ .0100	+ .0018	+ .0027
18 no. 3 and 16 no. 4	74	− .0033	− .0010	− .0046	+ .0070
16 no. 4 and 16 no. 5	96	− .0093	− .0075	− .0005	+ .0058
16 no. 5 and 21 no. 13	128	+ .0033	− .0019	− .0029	+ .0010
21 no. 13 and 18 no. 1	120	+ .0028	+ .0118	+ .0013	− .0058
18 no. 1 and 16 no. 2	96	+ .0010	+ .0029	+ .0023	− .0039
90° and 16 no. 2	86	− .0005	+ .0059	− .0001	− .0033
90° and 16 no. 7	76	− .0011	− .0044	− .0055	− .0055
90° and 21 no. 15	78	− .0021	− .0011	+ .0017	− .0050
90° and 18 no. 3	58	− .0004	+ .0096	+ .0006	+ .0003
90° and 16 no. 4	64	− .0029	+ .0045	− .0043	+ .0023
90° and 16 no. 5	78	− .0110	− .0032	− .0052	+ .0042
90° and 21 no. 13	98	− .0067	− .0065	− .0073	+ .0067
90° and 18 no. 1	84	− .0015	+ .0056	− .0018	− .0008

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Table VIII contains the probable errors of Table VII.

TABLE VIII.—PROBABLE ERRORS OF TABLE VII.

	$d\xi$ or $d\eta$.	dA' or $d\omega$.	r_0.
	mm.	″	″
16 no 2 and 16 no. 7	± .0009	± .0007	± 0.173
16 no. 7 and 21 no. 15	.0007	.0006	.176
21 no. 15 and 18 no. 3	.0001	.0010	.198
18 no. 3 and 16 no. 4.....	.0010	.0008	.194
16 no. 4 and 16 no. 5	.0008	.0008	.167
16 no. 5 and 21 no. 13	.0007	.0007	.204
21 no. 13 and 18 no. 1	.0008	.0007	.205
18 no. 1 and 16 no. 2	.0007	.0006	.152
90° and 16 no. 2.....	.0006	.0007	.171
90° and 16 no. 7.....	.0007	.0008	.177
90° and 21 no. 15.....	.0006	.0007	.154
90° and 18 no. 3.....	.0009	.0011	.199
90° and 16 no. 4.....	.0006	.0009	.162
90° and 16 no. 5.....	.0007	.0009	.177
90° and 21 no. 13.....	.0007	.0009	.205
90° and 18 no. 1.....	.0007	.0008	.183

Since the values of the differential reduction constants given in Table VII enable us merely to form the best combination of results derived from pairs of adjacent plates, it becomes necessary to find a method of reducing all of these combinations to the most uniform standard. This may be performed as follows (*cf.* Col. Con. no. 21, p. 70). If a star is found on plates 16–2, 16–7, and 90°, we may consider that by substituting the proper values from Table VII in equations (2) we may pass from plate 16–2 to 16–7, by a second negative substitution from 16–7 to 90°, and by a third substitution from 90° to 16–2. The final α and π should agree with the initial value of plate 16–2. Since this substitution is valid for every star common to the three plates, we should have theoretically

$$d\xi_1 - d\xi_{10} + d\xi_9 = 0,$$
$$d\eta_1 - d\eta_{10} + d\eta_9 = 0,$$
etc.

The subscripts denote the respective combinations in Table VII in which they are numbered in order from 1 to 16.

Let u represent a general expression for any differential constant. Since there are eight possible combinations of overlapping plates by means of which we may start with plate 16–2 and return to it, they

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will give rise to the following eight equations of condition of which there are four repetitions, u standing in turn for $d\xi_1$, $d\eta$, dA', and $d\omega$.

$$\begin{aligned}
u_1 + u_2 + u_3 + u_4 + u_5 + u_6 + u_7 + u_8 &= 0, \\
u_1 - u_{10} + u_9 &= 0, \\
u_1 + u_2 - u_{11} + u_9 &= 0, \\
u_1 + u_2 + u_3 - u_{12} + u_9 &= 0, \\
u_1 + u_2 + u_3 + u_4 - u_{13} + u_9 &= 0, \\
u_1 + u_2 + u_3 + u_4 + u_5 - u_{14} + u_9 &= 0, \\
u_1 + u_2 + u_3 + u_4 + u_5 + u_6 - u_{15} + u_9 &= 0, \\
u_1 + u_2 + u_3 + u_4 + u_5 + u_6 + u_7 - u_{16} + u_9 &= 0.
\end{aligned} \tag{3}$$

The second terms of these equations will not actually be equal to zero, but there will exist small discrepancies $w_1 \ldots w_8$, and these must be distributed among the various quantities $u_1 \ldots u_{16}$ in such a way as to cause the final differences to become as small as possible. This problem is solved by the method of correlatives (Merriman, Least Squares, pp. 59–64). Let $k_1 \ldots k_8$ be the multipliers or correlatives of the equations of condition. We shall then have the following eight normal equations which are to be solved by the ordinary processes of elimination.

$$\begin{aligned}
8k_1 + k_2 + 2k_3 + 3k_4 + 4k_5 + 5k_6 + 6k_7 + 7k_8 + w_1 &= 0, \\
3k_2 + 2k_3 + 2k_4 + 2k_5 + 2k_6 + 2k_7 + 2k_8 + w_2 &= 0, \\
4k_3 + 3k_4 + 3k_5 + 3k_6 + 3k_7 + 3k_8 + w_3 &= 0, \\
5k_4 + 4k_5 + 4k_6 + 4k_7 + 4k_8 + w_4 &= 0, \\
6k_5 + 5k_6 + 5k_7 + 5k_8 + w_5 &= 0, \\
7k_6 + 6k_7 + 6k_8 + w_6 &= 0, \\
8k_7 + 7k_8 + w_7 &= 0, \\
9k_8 + w_8 &= 0.
\end{aligned} \tag{4}$$

The values $k_1 \ldots k_8$, when substituted in the following formulas, will give the corrections to the various quantities $u_1 \ldots u_{16}$.

$$\begin{aligned}
du_1 &= k_1 + k_2 + k_3 + k_4 + k_5 + k_6 + k_7 + k_8, \\
du_2 &= k_1 + k_3 + k_4 + k_5 + k_6 + k_7 + k_8, \\
du_3 &= k_1 + k_4 + k_5 + k_6 + k_7 + k_8, \\
du_4 &= k_1 + k_5 + k_6 + k_7 + k_8, \\
du_5 &= k_1 + k_6 + k_7 + k_8, \\
du_6 &= k_1 + k_7 + k_8,
\end{aligned}$$

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$$
\begin{aligned}
du_7 &= k_1 + k_8 , \\
du_8 &= k_1 , \\
du_9 &= k_2 + k_3 + k_4 + k_5 + k_6 + k_7 + k_8 , \\
du_{10} &= -k_2 , \\
du_{11} &= -k_3 , \\
du_{12} &= -k_4 , \\
du_{13} &= -k_5 , \\
du_{14} &= -k_6 , \\
du_{15} &= -k_7 , \\
du_{16} &= -k_8 .
\end{aligned}
$$

Table IX gives the numerical values of the quantities $w_1 \ldots w_8$ obtained from equations (3).

TABLE IX.—VALUES OF $w_1 \ldots w_8$.

	$d\xi$	$d\eta$	dA'	$d\omega$
	mm.	*mm.*	″	″
w_1	− .0137	+ .0114	+ .0004	− .0021
w_2	− .0019	+ .0038	+ .0018	− .0033
w_3	− .0042	+ .0041	+ .0012	− .0072
w_4	− .0083	+ .0034	+ .0041	− .0098
w_5	− .0091	+ .0075	+ .0044	− .0048
w_6	− .0103	+ .0077	+ .0048	− .0009
w_7	− .0113	+ .0091	+ .0040	− .0024
w_8	− .0137	+ .0088	− .0002	− .0007

Table X gives the values of the correlatives $k_1 \ldots k_8$ as determined from equations (4).

TABLE X.—VALUES OF THE CORRELATIVES $k_1 \ldots k_8$.

	$d\xi$	$d\eta$	dA'	$d\omega$
	mm.	*mm.*	″	″
k_1	+ .0011	− .0019	+ .0001	+ .0011
k_2	− .0005	− .0012	− .0002	− .0001
k_3	− .0004	− .0003	+ .0008	+ .0014
k_4	+ .0010	+ .0012	− .0007	+ .0030
k_5	+ .0003	− .0009	− .0005	.0000
k_6	.0000	.0000	− .0009	− .0018
k_7	− .0003	− .0002	− .0009	.0000
k_8	+ .0005	+ .0010	+ .0016	− .0014

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Table XI gives the values of $du_1 \ldots du_{16}$ in equations (5). These numbers are to be applied to the corresponding quantities in Table VII.

TABLE XI.—CORRECTIONS REQUIRED BY TABLE VII.

	$d\xi$	$d\eta$	dA'	$d\omega$
	mm.	*mm.*	″	″
u_1	+ .0017	− .0023	− .0007	+ .0022
u_2	+ .0022	− .0011	− .0005	+ .0023
u_3	+ .0026	− .0008	− .0013	+ .0009
u_4	+ .0086	− .0020	− .0006	− .0021
u_5	+ .0013	− .0011	− .0001	− .0021
u_6	+ .0013	− .0011	+ .0008	− .0003
u_7	+ .0016	− .0009	+ .0017	− .0003
u_8	+ .0011	− .0019	+ .0001	+ .0011
u_9	+ .0006	− .0004	− .0008	+ .0011
u_{10}	+ .0005	+ .0012	+ .0002	+ .0001
u_{11}	+ .0004	+ .0003	− .0008	− .0014
u_{12}	− .0010	− .0012	+ .0007	− .0030
u_{13}	− .0003	+ .0009	+ .0005	.0000
u_{14}	.0000	.0000	+ .0009	+ .0018
u_{15}	+ .0003	+ .0002	+ .0009	.0000
u_{16}	− .0005	− .0010	− .0016	+ .0014

The quantities in Table XII are the sums of the corresponding values in Tables VII and XI. They form the best possible set of relative reduction constants, which adjust the separate inter-comparisons to a uniform basis.

TABLE XII.—FINAL INTER-COMPARISON OF PLATES.

	$d\xi$	$d\eta$	dA'	$d\omega$
	mm.	*mm.*	″	″
u_1	− .0008	− .0088	− .0043	− .0033
u_2	− .0011	+ .0025	+ .0061	− .0011
u_3	+ .0002	+ .0092	+ .0005	+ .0036
u_4	− .0017	− .0030	− .0052	+ .0049
u_5	− .0080	.0086	− .0006	+ .0037
u_6	+ .0046	− .0030	− .0021	+ .0007
u_7	+ .0044	+ .0109	+ .0030	− .0061
u_8	+ .0021	+ .0010	+ .0024	− .0028
u_9	+ .0001	+ .0055	− .0009	− .0022
u_{10}	− .0006	− .0032	− .0053	− .0054
u_{11}	− .0017	− .0008	+ .0009	− .0064
u_{12}	− .0014	+ .0084	+ .0013	− .0027
u_{13}	− .0032	+ .0054	− .0038	+ .0023
u_{14}	− .0110	− .0032	− .0043	+ .0060
u_{15}	− .0064	− .0063	− .0084	+ .0067
u_{16}	− .0020	+ .0046	− .0034	+ .0006

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IV.

Final Standardization. Catalogue.

It now becomes possible to make use of the preceding inter-adjustment to obtain a more complete agreement with the sky by reducing the right ascensions and polar distances of the standard stars as obtained from the several plates to the system of some one particular plate and comparing the results thus deduced with the heliometer places as in the first determination of the plate constants. (*Cf.* Col. Con. no. 21, p. 74.) The 90° plate was selected as the medium of comparison and the eight 89° plates were reduced to its standard. This was performed by substituting the last eight values from Table XII in equations (2) for such of the reference stars as appeared on the respective plates. Since the signs of the quantities as they stand in this table give the results which must be added to the 90° plate to produce agreement with any 89° plate, therefore the corrections obtained above must be subtracted from the α's and π's of the 89° plates to produce agreement with the 90° plate. This was accordingly done and the resulting right ascensions and polar distances were compared with the heliometer positions. The differences, Photographic minus Heliometer, were inserted in equations (2), and a least squares solution gave the corrections to the plate constants of the 90° plates upon which the improvement of the entire system is based. Equations (2) are then of the form

$$\omega \sin \alpha d\xi - \omega \cos \alpha d\eta + p dA' + \Delta\alpha \sin \pi = 0\,,$$
$$-\omega \cos \alpha d\xi - \omega \sin \alpha d\eta + p d\omega + \Delta\pi = 0\,,$$

in which the photographic place has been reduced to the 90° standard as just described. The quantities forming the last terms of these equations were taken from the values of which Table VI is the mean. They are in the sense Photographic minus Heliometer. The distribution of the standard stars was such that 124 equations were available for the least squares solution, and the following differential const ants are the resulting values:

$$d\xi = +\overset{\text{mm.}}{0.0006} \pm 0.0005\,,$$
$$d\eta = +\overset{\text{mm.}}{0.0033} \pm 0.0005\,,$$
$$dA' = -\overset{''}{0.0019} \pm 0.0004\,,$$
$$d\omega = -\overset{''}{0.0013} \pm 0.0004\,.$$

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These values when substituted in equations (2) for the unknown stars will give the corrections to be added to the 90° places to produce the most improved values. To obtain the definitive corrections to the 89° plates it is necessary to subtract from these quantities the last eight sets of numbers in Table XII, $u_9 \ldots u_{16}$, in turn. The results when substituted in equations (2) will give the corrections to be added to the places from the 89° plates. Table XIII contains these definitive correction constants.

TABLE XIII.—DEFINITIVE CORRECTION CONSTANTS.

	$d\xi$	$d\eta$	dA'	$d\omega$
90°	+ .0006	+ .0033	− .0019	− .0013
16–2	+ .0005	− .0022	− .0010	+ .0009
16–7	+ .0012	+ .0065	+ .0034	+ .0041
21–15	+ .0023	+ .0041	− .0028	+ .0051
18–3	+ .0020	− .0051	− .0032	+ .0014
16–4	+ .0038	− .0021	+ .0019	− .0036
16–5	+ .0116	+ .0065	+ .0024	− .0073
21–13	+ .0070	+ .0096	+ .0065	− .0080
18–1	+ .0026	− .0013	+ .0015	− .0019

The corrections thus obtained were added directly to the right ascensions and polar distances of which Table VI contains the means, $\Delta a \sin \pi$, having been previously multiplied by cosec π. The means of these corrected places form the final catalogue which is found in Table XVI. The residuals from the mean are given in Table XV, in the sense plate minus mean. A comparison of these residuals with those of Table VI shows that the process of inter-adjustment has considerably reduced them. The largest one, 1″.03, has become 0″.68, and only four residuals of the second solution are greater than 0″.60 as against thirty-five of the preliminary solution. The improvement may also be shown by comparing the sums of the squares of the residuals for all the stars, using the values which occur in Tables VI and XV, respectively:

	Preliminary solution.	*Final solution.*
$\Delta a \sin \pi$	53″.10,	22″.82,
$\Delta \pi$	46.25,	23.46.

The following table shows the differences, Photographic minus Heliometer, of the standard stars from both preliminary and final solutions. The preliminary solution being based solely on the standard stars gives results which agree more closely with the heliometer

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places than does the final solution, since the latter involves the unknown stars also, which far outnumber the standards. However, the deviation is not so great as to throw doubt upon the validity of the method of inter-adjustment and its results.

TABLE XIV.—RESIDUALS, PHOTOGRAPHIC MINUS HELIOMETER.

Star.	No. Plates.	Preliminary solution.		Final solution.	
		$\Delta\alpha \sin \pi$	$\Delta\pi$	$\Delta\alpha \sin \pi$	$\Delta\pi$
		″	″	″	″
α	4	− .17	− .01	− .38	+ .06
β	2	+ .11	− .16	+ .11	.00
δ	5	+ .02	− .05	− .01	− .11
ϵ	2	− .05	+ .28	− .24	+ .38
ζ	2	+ .13	− .34	− .03	− .21
η	2	− .04	+ .34	− .15	+ .60
θ	2	− .08	+ .04	− .25	+ .38
ι	4	+ .13	− .13	+ .14	− .06
κ	2	− .27	− .03	− .46	+ .12
λ	1	− .16	− .13	− .03	− .26
μ	2	+ .17	+ .05	+ .49	− .03
ν	4	− .09	+ .09	+ .05	+ .18
ξ	1	− .03	+ .03	+ .40	+ .04
o	2	+ .08	− .13	+ .40	− .13
π	2	+ .06	+ .03	+ .22	− .03
ρ	5	+ .14	+ .18	+ .03	+ .28
σ	2	.00	− .01	+ .12	− .28
τ	2	+ .29	− .18	+ .29	− .32
υ	2	.00	− .21	.00	− .45
ϕ	5	− .18	− .18	− .41	− .33
ψ	4	+ .02	− .11	− .09	− .28
χ	2	− .03	+ .13	+ .03	− .06
ω	4	+ .04	+ .16	− .06	+ .17

MAGNITUDES.—These were determined both photographically and visually by estimation. In the examination of the plates, the faintest stars measured were assumed to be of the twelfth magnitude. For the brighter stars the photographic magnitudes contained in the Harvard Annals, Vol. XVIII, p. 149, were taken as standards of comparison. Fortunately these were so distributed that some of them appeared on every plate. The mean results of the estimates from the different plates were taken as the adopted magnitudes.

The visual magnitudes were determined with the aid of the 12-inch equatorial, using the Argelander method and basing the comparisons upon the magnitudes found in Carrington's Redhill Catalogue of Circumpolar Stars. These had been determined by Carrington with great care, using the method of extinction (*cf.* Sec. 10, p. xxv), and

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while in the process of making the comparisons variations from his values were suspected, it did not seem advisable to delay the conclusion of this work long enough to make a thorough investigation, especially as the main object in view was the formation of a catalogue of positions. Further, in most cases only a single comparison was made, and the adopted values may, therefore, be subject to some error. Hence neither the photographic nor the visual magnitudes are to be considered as final.

The chart used for comparing the photographic positions with the sky was made by plotting the rectangular coördinates of the stars upon millimeter cross-section paper. By means of this chart a few errors in the reduction were detected by the disagreement of plate with sky.

Table XVI, which follows, contains the final catalogue. The headings of the several columns explain themselves. The rectangular coördinates and the precession coefficients were determined according to the method of Fabritius given in Publication 1, p. 58. The identification with the Carrington catalogue and with the Durchmusterung was made by using the above formulas and carrying the stars back to 1855, the epoch of both catalogues.

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TABLE XV.—Residuals from Mean of Final Catalogue.

No.	$\Delta a \sin \pi$									$\Delta \pi$								
	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15
	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″
1	−.02	+.17	.....	.....	.00	−.03	.....	.....	−.08	−.02	−.15	.....	.....	−.29	+.48	.....	.....	−.02
2	−.21	+.38	.....	.....	−.08	.....	.....	.....	−.06	−.36	−.01	.....	.....	+.06	.....	.....	.....	+.32
3	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....
4	+.08	+.10	.....	.....	−.17	.....	.....	.....	.....	+.38	−.28	.....	.....	−.09	.....	.....	.....	.....
5	+.02	+.21	.....	.....	+.08	−.17	.....	.....	−.14	−.41	−.01	.....	.....	+.15	−.11	.....	.....	+.38
6	.....	−.06	.....	.....	+.08	.....	.....	.....	.....	.....	+.16	.....	.....	−.15	.....	.....	.....	.....
7	.....	−.02	.....	.....	.00	.....	.....	.....	.....	.....	−.06	.....	.....	+.07	.....	.....	.....	.....
8	.00	+.16	.....	.....	+.02	−.24	.....	.....	+.09	+.03	−.07	.....	.....	−.19	+.20	.....	.....	+.04
9	.....	−.09	.....	.....	+.14	.....	.....	.....	−.05	.....	−.22	.....	.....	−.11	.....	.....	.....	+.32
10	.....	−.21	.....	.....	+.21	.....	.....	.....	.....	.....	+.13	.....	.....	−.13	.....	.....	.....	.....
11	.....	−.13	.....	.....	−.16	.....	.....	.....	.....	.....	+.48	.....	.....	−.48	.....	.....	.....	.....
12	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
13	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
14	.....	−.06	.....	.....	+.06	.....	.....	.....	.....	.....	−.02	.....	.....	+.01	.....	.....	.....	.....
15	.....	+.03	.....	.....	−.03	.....	.....	.....	.....	.....	+.22	.....	.....	−.22	.....	.....	.....	.....
16	.....	+.12	.....	.....	+.04	.....	.....	.....	−.16	.....	−.16	.....	.....	+.18	.....	.....	.....	−.02
17	.....	.00	.....	.....	−.03	.....	.....	.....	.....	.....	+.24	.....	.....	−.24	.....	.....	.....	.....
18	.00	.....	.....	.....	−.33	.....	.....	.....	+.32	+.03	.....	.....	.....	−.24	.....	.....	.....	+.20
19	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
20	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
21	.....	.00	.....	.....	−.05	.....	.....	.....	+.05	.....	+.19	.....	.....	−.06	.....	.....	.....	−.12
22	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
23	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
24	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
25	+.14	−.24	.....	.....	+.04	.....	.....	.....	+.03	+.01	−.13	.....	.....	+.08	.....	.....	.....	+.02
26	+.27	.....	.....	.....	.....	.....	.....	.....	−.27	−.11	.....	.....	.....	.....	.....	.....	.....	+.11
27	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
28	+.42	+.08	.....	.....	−.12	.....	.....	.....	−.37	+.14	+.21	.....	.....	−.02	.....	.....	.....	−.34
29	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
30	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....
31	−.06	−.27	.....	.....	+.14	.....	.....	.....	+.16	+.28	−.08	.....	.....	−.18	.....	.....	.....	−.03
32	.....	.....	.....	.....	−.11	.....	.....	.....	+.10	.....	.....	.....	.....	−.06	.....	.....	.....	+.07
33	.....	.....	.....	.....	+.04	.....	.....	.....	−.02	.....	.....	.....	.....	+.01	.....	.....	.....	−.01
34	.....	.....	.....	.....	+.10	.....	.....	.....	−.10	.....	.....	.....	.....	+.15	.....	.....	.....	−.14
35	.....	.....	.....	.....	+.06	.....	.....	.....	−.09	.....	.....	.....	.....	+.08	.....	.....	.....	−.08
36	.00	+.19	.....	.....	−.02	.....	−.22	.....	+.07	+.18	+.03	.....	.....	−.07	.....	+.03	.....	−.16

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TABLE XV (cont'd).—RESIDUALS FROM MEAN OF FINAL CATALOGUE.

No.	$\Delta a \sin \pi$									$\Delta \pi$								
	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15
	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″
83	+.07	.....	.....	.....	+.05	.....	−.14	.....	+.03	−.09	.....	.....	.....	+.21	.....	−.04	.....	−.06
84	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
85	−.06	.....	.....	.....	+.10	.....	+.06	.....	−.06	+.01	.....	.....	.....	+.19	.....	−.13	.....	−.07
86	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
87	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
88	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
89	−.01	.....	−.14	.....	+.22	.....	−.21	.....	+.14	+.22	.....	−.20	.....	+.23	.....	−.28	.....	+.01
90	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
91	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
92	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
93	−.15	.....	−.30	.....	−.01	.....	−.15	.....	+.29	−.20	.....	+.26	.....	+.12	.....	−.15	.....	−.04
94	.....	.....	.....	.....	.....	.....	−.05	.....	+.08	.....	.....	.....	.....	.....	.....	−.18	.....	+.18
95	.....	.....	.....	.....	.....	.....	−.21	.....	+.18	.....	.....	.....	.....	.....	.....	−.12	.....	+.12
96	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
97	.....	.....	.....	.....	.....	.....	−.05	.....	+.02	.....	.....	.....	.....	.....	.....	−.31	.....	+.30
98	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
99	.....	.....	.....	.....	.....	.....	−.17	.....	+.20	.....	.....	.....	.....	.....	.....	−.18	.....	+.17
100	−.04	.....	.....	.....	.....	.....	.....	.....	+.03	−.15	.....	.....	.....	.....	.....	.....	.....	+.14
101	.....	.....	.....	.....	.....	.....	−.11	.....	+.11	.....	.....	.....	.....	.....	.....	+.13	.....	−.13
102	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
103	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
104	.....	.....	.....	.....	.....	.....	+.03	.....	.00	.....	.....	.....	.....	.....	.....	−.09	.....	+.08
105	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00
106	+.07	.....	.....	.....	.....	.....	.....	.....	−.08	−.12	.....	.....	.....	.....	.....	.....	.....	+.11
107	.....	.....	.....	.....	.....	.....	+.07	.....	−.05	.....	.....	.....	.....	.....	.....	−.05	.....	+.04
108	.....	.....	.....	.....	.....	.....	−.18	.....	+.16	.....	.....	.....	.....	.....	.....	+.24	.....	−.24
109	.....	.....	.....	.....	.....	.....	+.24	.....	−.27	.....	.....	.....	.....	.....	.....	−.27	.....	+.26
110	.....	.....	.....	.....	.....	.....	−.19	.....	+.19	.....	.....	.....	.....	.....	.....	+.21	.....	−.21
111	.....	.....	.....	.....	.....	.....	+.07	.....	−.07	.....	.....	.....	.....	.....	.....	−.10	.....	+.11
112	+.04	.....	.....	.....	.....	.....	−.06	.....	.00	+.68	.....	.....	.....	.....	.....	−.43	.....	−.25
113	.....	.....	.....	.....	.....	.....	−.21	.....	+.19	.....	.....	.....	.....	.....	.....	−.16	.....	+.16
114	.....	.....	.....	.....	.....	.....	+.20	.....	−.20	.....	.....	.....	.....	.....	.....	+.12	.....	−.12
115	.....	.....	.....	.....	.....	.....	−.06	.....	+.06	.....	.....	.....	.....	.....	.....	+.19	.....	−.20
116	+.13	.....	−.26	.....	−.21	.....	+.13	.....	+.23	−.02	.....	−.07	.....	+.17	.....	−.03	.....	−.04
117	.....	.....	.....	.....	.....	.....	+.04	.....	−.04	.....	.....	.....	.....	.....	.....	−.36	.....	+.36
118	.....	.....	.....	.....	.....	.....	+.07	.....	−.07	.....	.....	.....	.....	.....	.....	−.23	.....	+.23

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TABLE XV (cont'd).—RESIDUALS FROM MEAN OF FINAL CATALOGUE.

No.	$\Delta a \sin \pi$									$\Delta \pi$								
	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15
	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″
165	.....	.....	−.05	+.05	.....	.....	.....	.....	.....	.....	.....	−.12	+.12	.....	.....	.....	.....	.....
166	.....	.....	+.05	+.10	.....	.....	−.14	.....	.....	.....	.....	+.05	+.17	.....	.....	−.21	.....	.....
167	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....
168	+.12	.....	−.24	−.10	.....	.....	−.34	+.56	.....	−.09	.....	−.05	+.24	.....	.....	+.36	−.46	.....
169	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....
170	.....	.....	.00	.00	.....	.....	.....	.....	.....	.....	.....	+.18	−.17	.....	.....	.....	.....	.....
171	.....	.....	+.40	−.42	.....	.....	.....	.....	.....	.....	.....	+.26	−.26	.....	.....	.....	.....	.....
172	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....
173	.....	.....	+.16	−.13	.....	.....	.....	.....	.....	.....	.....	+.12	−.13	.....	.....	.....	.....	.....
174	.....	.....	−.06	+.09	.....	.....	.....	.....	.....	.....	.....	+.19	−.19	.....	.....	.....	.....	.....
175	−.06	.....	+.20	−.09	.....	.....	+.22	−.29	.....	−.04	.....	−.13	+.02	.....	.....	+.37	−.22	.....
176	.....	.....	+.15	−.15	.....	.....	.....	.....	.....	.....	.....	−.03	+.03	.....	.....	.....	.....	.....
177	−.14	.....	−.12	−.02	.....	.....	−.09	+.38	.....	+.07	.....	+.03	−.03	.....	.....	+.15	−.21	.....
178	.....	.....	−.08	+.11	.....	.....	.....	.....	.....	.....	.....	−.19	+.20	.....	.....	.....	.....	.....
179	.....	.....	−.21	+.21	.....	.....	.....	.....	.....	.....	.....	.00	.00	.....	.....	.....	.....	.....
180	.....	.....	−.11	+.08	.....	.....	.....	.....	.....	.....	.....	−.17	+.17	.....	.....	.....	.....	.....
181	.....	.....	−.18	+.20	.....	.....	.....	.....	.....	.....	.....	+.08	−.09	.....	.....	.....	.....	.....
182	−.21	.....	−.09	−.21	.....	.....	.....	+.48	.....	+.08	.....	+.08	−.17	.....	.....	.....	.00	.....
183	.....	.....	+.12	−.12	.....	.....	.....	.....	.....	.....	.....	−.13	+.12	.....	.....	.....	.....	.....
184	.....	.....	−.17	+.17	.....	.....	.....	.....	.....	.....	.....	−.14	+.15	.....	.....	.....	.....	.....
185	.....	.....	−.14	+.14	.....	.....	.....	.....	.....	.....	.....	+.04	−.04	.....	.....	.....	.....	.....
186	.....	.....	−.08	+.08	.....	.....	.....	.....	.....	.....	.....	+.10	−.10	.....	.....	.....	.....	.....
187	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....
188	.....	.....	−.28	+.26	.....	.....	.....	.....	.....	.....	.....	−.17	+.17	.....	.....	.....	.....	.....
189	+.23	.....	+.10	−.20	.....	.....	.....	−.13	.....	+.12	.....	−.14	.00	.....	.....	.....	+.04	.....
190	−.01	.....	−.01	+.05	.....	.....	.....	−.01	.....	−.04	.....	+.17	−.10	.....	.....	.....	−.02	.....
191	+.08	.....	−.11	−.04	.....	.....	−.25	+.31	.....	+.12	.....	+.30	+.15	.....	.....	−.76	+.21	.....
192	.....	.....	−.02	+.02	.....	.....	.....	.....	.....	.....	.....	−.05	+.05	.....	.....	.....	.....	.....
193	−.02	.....	−.25	−.07	.....	.....	−.32	+.68	.....	−.04	.....	−.04	+.06	.....	.....	−.01	+.04	.....
194	.....	.....	−.08	+.08	.....	.....	.....	.....	.....	.....	.....	+.02	−.02	.....	.....	.....	.....	.....
195	.....	.....	−.07	+.07	.....	.....	.....	.....	.....	.....	.....	−.05	+.05	.....	.....	.....	.....	.....
196	+.19	.....	+.13	−.06	.....	.....	.....	−.26	.....	.00	.....	+.25	+.05	.....	.....	.....	−.28	.....
197	.....	.....	−.11	−.14	.....	.....	.....	+.24	.....	.....	.....	−.30	+.31	.....	.....	.....	−.02	.....
198	.....	.....	−.05	+.02	.....	.....	.....	.....	.....	.....	.....	−.31	+.31	.....	.....	.....	.....	.....
199	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....
200	+.08	.....	+.02	−.16	.....	.....	+.37	−.31	.....	−.15	.....	−.10	+.11	.....	.....	+.22	−.08	.....

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TABLE XV (cont'd).—RESIDUALS FROM MEAN OF FINAL CATALOGUE.

No.	$\Delta a \sin \pi$									$\Delta \pi$								
	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15
	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″
247	.....	.....	.....	−.17	.....	.....	.....	+.14	.....	.....	.....	.....	+.02	.....	.....	.....	−.01	.....
248	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
249	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
250	−.07	.....	−.11	−.01½	.....	+.28	.....	−.11	.....	+.11	.....	−.16	+.06	.....	−.01	.....	−.02	.....
251	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
252	−.04	.....	.....	+.06	.....	−.07	.....	+.04	.....	+.18	.....	.....	−.17	.....	−.04	.....	+.01	.....
253	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
254	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
255	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
256	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
257	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
258	−.20	.....	.....	+.16	.....	−.18	.....	+.23	.....	−.27	.....	.....	−.13	.....	+.27	.....	+.12	.....
259	+.04	.....	.....	−.11	.....	+.04	.....	+.04	.....	−.07	.....	.....	−.07	.....	+.03	.....	+.10	.....
260	.....	.....	.....	−.18	.....	−.11	.....	+.31	.....	.....	.....	.....	−.02	.....	−.27	.....	+.28	.....
261	.....	.....	.....	−.53	.....	.....	.....	+.50	.....	.....	.....	.....	+.03	.....	.....	.....	−.03	.....
262	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
263	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
264	.....	.....	.....	−.45	.....	.....	.....	+.42	.....	.....	.....	.....	+.19	.....	.....	.....	−.18	.....
265	−.07	.....	.....	−.03	.....	.00	.....	+.11	.....	−.09	.....	.....	+.13	.....	+.07	.....	−.09	.....
266	+.09	.....	−.04	+.10	.....	−.26	.....	+.13	.....	+.02	.....	−.44	+.11	.....	+.25	.....	+.07	.....
267	.....	.....	.....	−.46	.....	.....	.....	+.46	.....	.....	.....	.....	−.02	.....	.....	.....	+.03	.....
268	−.06	.....	.....	.....	.....	+.08	.....	−.03	.....	.00	.....	.....	.....	.....	+.06	.....	−.05	.....
269	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
270	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
271	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
272	.....	.....	.....	−.40	.....	+.16	.....	+.24	.....	.....	.....	.....	−.22	.....	+.16	.....	+.06	.....
273	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
274	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
275	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
276	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
277	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
278	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
279	−.14	−.26	.....	−.03	.....	−.04	.....	+.47	.....	+.30	−.01	.....	+.03	.....	−.14	.....	−.17	.....
280	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
281	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....
282	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....

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TABLE XV (concl'd).—RESIDUALS FROM MEAN OF FINAL CATALOGUE.

No.	$\Delta a \sin \pi$									$\Delta \pi$								
	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15	90°	16–2	16–4	16–5	16–7	18–1	18–3	21–13	21–15
	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″	″
329	−.18	+.26	.....	−.23	.....	−.01	.....	+.13	.....	+.11	+.14	.....	−.08	.....	−.18	.....	+.01	.....
330	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
331	.....	.....	.....	.....	.....	−.11	.....	+.09	.....	.....	.....	.....	.....	.....	+.06	.....	−.06	.....
332	.....	+.05	.....	.....	.....	−.14	.....	+.12	.....	.....	+.17	.....	.....	.....	+.05	.....	−.22	.....
333	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
334	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....
335	+.02	+.10	.....	−.24	.....	+.03	.....	+.10	.....	−.12	+.03	.....	−.15	.....	+.14	.....	+.11	.....
336	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
337	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
338	+.10	.....	.....	.....	.....	−.42	.....	+.32	.....	+.22	.....	.....	.....	.....	+.13	.....	−.34	.....
339	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
340	+.11	+.23	.....	−.54	.....	+.16	.....	+.05	.....	+.18	−.15	.....	−.25	.....	−.05	.....	+.25	.....
341	.....	+.04	.....	.....	.....	−.11	.....	+.07	.....	.....	+.07	.....	.....	.....	+.15	.....	−.23	.....
342	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
343	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
344	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
345	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
346	.....	+.10	.....	.....	.....	−.18	.....	+.10	.....	.....	+.12	.....	.....	.....	+.17	.....	−.28	.....
347	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
348	+.21	+.07	.....	−.18	.....	−.05	.....	−.04	.....	−.19	.00	.....	−.11	.....	+.05	.....	+.27	.....
349	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
350	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
351	−.02	+.12	.....	.....	.....	+.18	.....	−.23	.....	−.24	+.20	.....	.....	.....	.00	.....	+.06	.....
352	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
353	+.22	−.12	.....	.....	.....	−.10	.....	+.04	.....	+.11	+.07	.....	.....	.....	+.05	.....	−.23	.....
354	.....	+.08	.....	.....	.....	−.10	.....	.....	.....	.....	+.01	.....	.....	.....	−.01	.....	.....	.....
355	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
356	+.02	+.08	.....	.....	.....	+.15	.....	−.27	.....	+.16	+.07	.....	.....	.....	−.13	.....	−.10	.....
357	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
358	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
359	.....	−.03	.....	.....	.....	.00	.....	.....	.....	.....	−.17	.....	.....	.....	+.17	.....	.....	.....
360	.....	−.02	.....	.....	.....	+.05	.....	.....	.....	.....	−.10	.....	.....	.....	+.10	.....	.....	.....
361	.....	.....	.....	.....	.....	.00	.....	.....	.....	.....	.....	.....	.....	.....	.00	.....	.....	.....
362	+.18	−.11	.....	.....	.....	−.05	.....	−.01	.....	−.30	+.44	.....	.....	.....	−.01	.....	−.12	.....
363	.....	−.22	.....	.....	.....	+.22	.....	.....	.....	.....	+.12	.....	.....	.....	−.12	.....	.....	.....
364	.....	−.08	.....	.....	.....	+.08	.....	.....	.....	.....	−.03	.....	.....	.....	+.02	.....	.....	.....

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TABLE XVI.—FINAL CATALOGUE.

No.	Mag.		R. A. 1888.0			N. P. D.	Decl. 1888.0			Y	X	Number in	
	Phot.	Vis.										B. D. M.	Car.
			h	m	s	"	°	′	"	"	"		
1	10.4	10.3	1	45	46	3441.26	89	2	38.74	+ 105.85	+3439.48	88 1	9
2	8.6	8.3	3	38	4	4232.34	88	49	27.66	+ 268.27	+4223.53	88 2	23
3	12.0	12.0	3	49	35	1356.12	89	37	23.88	+ 90.50	+1353.09	.....	.....
4	10.7	11.5	5	12	36	3420.52	89	2	59.48	+ 310.59	+3406.23	.....	.....
5	10.3	10.1	5	41	21	768.47	89	47	11.53	+ 76.18	+ 764.68	89 1	6
6	11.5	10.5	5	46	30	5852.92	88	22	27.08	+ 588.86	+5822.44	.....	.....
7	11.0	11.3	6	22	46	4701.24	88	41	38.76	+ 522.32	+4671.72	.....	.....
8	11.1	11.0	6	36	23	3156.64	89	7	23.36	+ 363.15	+3135.55	.....	.....
9	11.0	10.1	8	33	17	4675.25	88	42	4.75	+ 695.40	+4622.83	88 3	73
10	11.9	11.5	9	10	2	4333.61	88	47	46.39	+ 690.36	+4277.94	.....	.....
11	11.2	10.5	10	18	2	6738.87	88	7	41.13	+1204.78	+6629.07	.....	.....
12	12.0	10.8	10	32	53	5780.82	88	23	39.18	+1058.10	+5682.39	.....	.....
13	12.0	12.0	10	48	56	3818.27	88	56	21.73	+ 716.45	+3750.23	.....	.....
14	6.6	6.7	13	9	31	5678.28	88	25	21.72	+1292.48	+5528.50	88 4	117
15	10.2	10.2	13	37	31	5395.43	88	30	4.57	+1270.86	+5242.99	.....	.....
16	11.5	11.5	13	45	7	4095.19	88	51	44.81	+ 973.44	+3977.53	.....	.....
17	9.3	9.9	14	6	30	5788.69	88	23	31.31	+1410.84	+5613.35	88 5	127
18	12.0	11.0	14	9	22	1988.48	89	26	51.52	+ 486.31	+1928.07	.....	.....
19	9.8	9.1	14	24	0	6964.32	88	3	55.68	+1731.62	+6744.23	87 8	137
20	12.0	10.6	18	15	20	4964.79	88	37	15.21	+1555.10	+4714.45	.....	.....
21	9.5	9.7	18	20	53	5375.06	88	30	24.94	+1691.82	+5101.22	88 6	172
22	9.5	8.0	18	43	35	7276.24	87	58	43.76	+2335.55	+6889.62	87 12	183
23	9.5	9.5	19	18	30	4655.10	88	42	24.90	+1539.09	+4392.89	88 7	178
24	11.5	10.4	21	18	3	6759.12	88	7	20.88	+2454.91	+6296.25	87 14	197
25	10.5	9.7	24	5	22	2976.88	89	10	23.12	+1215.01	+2717.52	89 2	201
26	12.0	11.5	24	6	7	2140.38	89	24	19.62	+ 874.03	+1953.75	.....	.....
27	11.5	11.5	24	26	46	6254.21	88	15	45.79	+2587.83	+5692.66	.....	.....
28	11.1	11.0	25	7	42	3522.69	89	1	17.31	+1495.83	+3189.15	.....	.....
29	12.0	12.0	27	26	55	3490.54	89	1	49.46	+1608.90	+3097.44	.....	.....
30	8.7	9.3	27	51	58	6666.80	88	8	53.20	+3115.56	+5892.70	87 16	263
31	11.5	11.0	28	15	52	3279.88	89	5	20.12	+1553.10	+2888.71	.....	.....
32	12.0	11.5	29	38	40	4008.18	88	53	11.82	+1982.39	+3483.34	.....	.....
33	11.3	11.5	30	21	22	4112.69	88	51	27.31	+2078.30	+3548.61	.....	.....
34	8.2	8.4	31	50	35	4876.04	88	38	43.96	+2572.33	+4141.80	88 9	284
35	8.4	8.9	32	59	46	6473.31	88	12	6.69	+3524.68	+5428.34	88 11	305
36	9.8	9.6	35	16	0	3431.23	89	2	48.77	+1981.05	+2801.38	88 10	303
37	10.8	11.0	35	58	51	3148.11	89	7	31.89	+1849.49	+2547.39	.....	.....
38	10.7	10.3	36	24	28	2237.92	89	22	42.08	+1328.24	+1801.07	89 5	288
39	10.4	9.9	37	14	25	5936.54	88	21	3.46	+3592.06	+4725.44	88 12	331
40	11.9	11.6	37	42	12	4668.80	88	42	11.20	+2855.07	+3693.58	.....	.....
41	10.8	11.2	38	12	26	2197.77	89	23	22.23	+1359.31	+1726.93	.....	.....
42	8.9	9.1	38	43	30	5337.32	88	31	2.68	+3338.57	+4163.48	88 13	347
43	10.4	10.4	39	4	32	1633.14	89	32	46.86	+1029.43	+1267.82	89 4	c
44	10.8	10.6	39	39	53	7144.92	88	0	55.08	+4559.64	+5499.00	.....	.....
45	10.2	9.7	40	2	28	5956.92	88	20	43.08	+3831.78	+4559.88	88 14	362

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PRECESSION COEFFICIENTS.

No.	dy	dx	100 d^2y	100 d^2x	10,000 d^2y	10,000 d^2x
	"	"	"	"	"	"
1	+0.7685	−20.0740	−0.4480	−0.0118	−0.0009	+0.0119
2	+0.9437	−20.1088	−0.4487	−0.0165	−0.0010	+0.0119
3	+0.3023	−20.0729	−0.4483	+0.0006	−0.0006	+0.0119
4	+0.7611	−20.1197	−0.4491	−0.0117	−0.0009	+0.0119
5	+0.1709	−20.0700	−0.4484	+0.0041	−0.0005	+0.0119
6	+1.3009	−20.1766	−0.4500	−0.0261	−0.0012	+0.0120
7	+1.0438	−20.1646	−0.4499	−0.0192	−0.0010	+0.0120
8	+0.7006	−20.1318	−0.4494	−0.0102	−0.0008	+0.0119
9	+1.0329	−20.2034	−0.4508	−0.0189	−0.0010	+0.0120
10	+0.9558	−20.2029	−0.4508	−0.0169	−0.0010	+0.0120
11	+1.4812	−20.3116	−0.4529	−0.0310	−0.0013	+0.0121
12	+1.2697	−20.2816	−0.4524	−0.0252	−0.0012	+0.0120
13	+0.8380	−20.2098	−0.4511	−0.0138	−0.0009	+0.0120
14	+1.2353	−20.3343	−0.4535	−0.0244	−0.0011	+0.0121
15	+1.1715	−20.3302	−0.4535	−0.0227	−0.0011	+0.0121
16	+0.8887	−20.2666	−0.4524	−0.0151	−0.0009	+0.0120
17	+1.2542	−20.3604	−0.4541	−0.0249	−0.0011	+0.0121
18	+0.4308	−20.1608	−0.4501	−0.0030	−0.0007	+0.0120
19	+1.5069	−20.4286	−0.4555	−0.0316	−0.0013	+0.0121
20	+1.0534	−20.3948	−0.4550	−0.0196	−0.0010	+0.0121
21	+1.1398	−20.4243	−0.4556	−0.0219	−0.0011	+0.0121
22	+1.5394	−20.5625	−0.4585	−0.0326	−0.0013	+0.0122
23	+0.9815	−20.3919	−0.4550	−0.0177	−0.0010	+0.0121
24	+1.4068	−20.5908	−0.4591	−0.0291	−0.0012	+0.0122
25	+0.6072	−20.3225	−0.4537	−0.0078	−0.0008	+0.0121
26	+0.4365	−20.2473	−0.4521	−0.0031	−0.0007	+0.0120
27	+1.2720	−20.6221	−0.4600	−0.0256	−0.0012	+0.0122
28	+0.7126	−20.3844	−0.4551	−0.0105	−0.0008	+0.0121
29	+0.6921	−20.4097	−0.4556	−0.0100	−0.0008	+0.0121
30	+1.3167	−20.7387	−0.4626	−0.0268	−0.0012	+0.0123
31	+0.6454	−20.3975	−0.4553	−0.0088	−0.0008	+0.0121
32	+0.7783	−20.4922	−0.4574	−0.0124	−0.0009	+0.0122
33	+0.7929	−20.5135	−0.4579	−0.0128	−0.0009	+0.0122
34	+0.9254	−20.6223	−0.4601	−0.0164	−0.0009	+0.0122
35	+1.2129	−20.8307	−0.4647	−0.0242	−0.0011	+0.0124
36	+0.6259	−20.4929	−0.4575	−0.0083	−0.0008	+0.0122
37	+0.5692	−20.4639	−0.4568	−0.0068	−0.0007	+0.0121
38	+0.4024	−20.3487	−0.4544	−0.0023	−0.0006	+0.0121
39	+1.0558	−20.8474	−0.4651	−0.0200	−0.0010	+0.0124
40	+0.8253	−20.6859	−0.4617	−0.0137	−0.0009	+0.0123
41	+0.3859	−20.3556	−0.4546	−0.0019	−0.0006	+0.0121
42	+0.9303	−20.7923	−0.4640	−0.0166	−0.0010	+0.0123
43	+0.2833	−20.2824	−0.4530	+0.0010	−0.0006	+0.0120
44	+1.2287	−21.0599	−0.4698	−0.0247	−0.0011	+0.0125
45	+1.0188	−20.9009	−0.4664	−0.0190	−0.0010	+0.0124

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TABLE XVI.—FINAL CATALOGUE (cont'd).

No.	Mag. Phot.	Mag. Vis.	R. A. 1888.0 °	′	″	N. P. D. ″	Decl. 1888.0 °	′	″	Y ″	X ″	Number in B. D. M.	Car.
46	11.8	11.6	40	22	6	3826.14	88	56	13.86	+2478.04	+2914.95	.....	.....
47	8.7	9.3	41	26	30	1297.14	89	38	22.86	+ 858.52	+ 972.37	89 3	*b*
48	9.0	8.5	41	27	42	6864.53	88	5	35.47	+4544.30	+5143.32	87 23	375
49	10.2	10.3	41	37	56	3039.63	89	9	20.37	+2019.29	+2271.81	89 6	345
50	10.7	11.2	42	6	25	6183.44	88	16	56.56	+4145.48	+4586.77	.....	.....
51	11.5	11.2	42	57	44	6221.02	88	16	18.98	+4239.07	+4551.86	.....	.....
52	10.9	10.7	43	16	56	6506.76	88	11	33.24	+4460.25	+4736.04	.....	.....
53	11.5	11.2	43	38	13	5859.90	88	22	20.10	+4043.29	+4240.39	.....	.....
54	11.1	11.2	44	28	15	1427.86	89	36	12.14	+1000.27	+1018.92	.....	.....
55	9.6	9.1	44	39	0	7344.01	87	57	35.99	+5160.10	+5223.52	87. 27	412
56	10.8	10.3	45	14	17	4187.78	88	50	12.22	+2973.28	+2948.67	88 15	397
57	9.6	9.9	45	23	33	5738.40	88	24	21.60	+4084.84	+4029.25	88 16	409
58	11.2	10.4	46	6	56	7226.40	87	59	33.60	+5207.28	+5008.37	.....	.....
59	11.2	9.7	46	58	24	6159.48	88	17	20.52	+4502.13	+4202.22	88 17	428
60	11.5	12.0	52	32	55	3226.03	89	6	13.97	+2560.94	+1961.63	.....	.....
61	11.2	11.2	52	57	8	4079.58	88	52	0.42	+3255.85	+2457.72	.....	.....
62	11.8	11.4	55	44	46	1909.24	89	28	10.76	+1578.06	+1074.62	.....	.....
63	11.4	11.5	56	6	7	3548.84	89	0	51.16	+2945.51	+1979.15	.....	.....
64	10.8	10.3	56	9	25	5924.78	88	21	15.22	+4920.23	+3299.16	88 18	500
65	12.0	12.0	56	52	13	5663.50	88	25	36.50	+4742.21	+3094.91	.....	.....
66	9.8	10.1	57	50	49	2939.55	89	11	00.45	+2488.63	+1564.32	89 7	475
67	11.2	11.0	58	38	50	2652.68	89	15	47.32	+2265.27	+1380.17	.....	.....
68	8.0	8.7	59	23	4	7216.88	87	59	43.12	+6209.60	+3674.63	87 33	545
69	10.8	9.9	59	48	6	5046.06	88	35	53.94	+4360.81	+2537.88	88 19	529
70	10.5	10.7	60	27	42	6813.07	88	6	26.93	+5926.47	+3358.28	88 21	.....
71	11.1	10.8	60	45	19	4049.78	88	52	30.22	+3533.38	+1978.36	.....	.....
72	12.0	11.8	61	57	56	5063.21	88	35	36.79	+4468.67	+2379.48	.....	.....
73	11.2	11.2	62	1	26	4717.66	88	41	22.34	+4166.00	+2212.88	.....	.....
74	10.1	9.7	63	16	52	3614.00	88	59	46.00	+3227.94	+1624.82	88 20	538
75	11.4	11.5	63	48	48	3210.64	89	6	29.36	+2880.99	+1416.79	.....	.....
76	12.0	12.0	64	1	43	2726.61	89	14	33.39	+2451.18	+1194.01	.....	.....
77	11.2	11.3	64	10	47	4684.93	88	41	55.07	+4216.85	+2040.35	.....	.....
78	10.8	11.3	64	44	6	5256.08	88	32	23.92	+4752.78	+2243.08	.....	.....
79	11.8	11.8	65	4	33	3701.33	88	58	18.67	+3356.43	+1559.72	.....	.....
80	12.0	11.8	65	15	38	2784.75	89	13	35.25	+2529.09	+1165.36	.....	.....
81	11.5	11.2	66	8	6	5745.58	88	24	14.42	+5253.66	+2324.27	.....	.....
82	10.2	10.3	67	35	10	3994.26	88	53	25.74	+3692.28	+1522.90	88 22	585
83	11.0	10.6	67	39	54	3559.16	89	0	40.84	+3291.97	+1352.49	.....	.....
84	10.5	10.3	68	35	33	6756.93	88	7	23.07	+6289.61	+2465.82	88 23	.....
85	11.1	10.3	68	52	6	3276.64	89	5	23.36	+3056.17	+1181.22	89 8	579
86	10.2	10.3	69	19	36	6755.93	88	7	24.07	+6319.77	+2384.68	88 24	627
87	12.0	11.0	69	26	7	5132.68	88	34	27.32	+4805.11	+1802.74	.....	.....
88	11.8	11.5	70	23	5	3904.14	88	54	55.86	+3677.35	+1310.55	.....	.....
89	10.6	10.8	70	48	13	1238.67	89	39	21.33	+1169.78	+ 407.28	.....	.....
90	10.8	10.3	72	50	49	6984.30	88	3	35.70	+6672.37	+2059.45	88 25	660

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PRECESSION COEFFICIENTS (cont'd).

No.	dy	dx	100 d^2y	100 d^2x	10,000 d^2y	10,000 d^2x
	"	"	"	"	"	"
46	+0.6513	−20.6023	−0.4600	−0.0090	−0.0008	+0.0122
47	+0.2173	−20.2445	−0.4523	+0.0027	−0.0005	+0.0120
48	+1.1492	−21.0574	−0.4698	−0.0225	−0.0011	+0.0125
49	+0.5076	−20.5021	−0.4578	−0.0052	−0.0007	+0.0122
50	+1.0249	−20.9704	−0.4680	−0.0193	−0.0010	+0.0124
51	+1.0171	−20.9912	−0.4685	−0.0190	−0.0010	+0.0125
52	+1.0582	−21.0397	−0.4694	−0.0202	−0.0010	+0.0125
53	+0.9475	−20.9484	−0.4675	−0.0172	−0.0010	+0.0124
54	+0.2277	−20.2761	−0.4530	+0.0024	−0.0005	+0.0120
55	+1.1671	−21.1934	−0.4728	−0.0231	−0.0011	+0.0126
56	+0.6588	−20.7132	−0.4624	−0.0093	−0.0008	+0.0123
57	+0.9003	−20.9580	−0.4677	−0.0159	−0.0009	+0.0124
58	+1.1191	−21.2043	−0.4731	−0.0219	−0.0011	+0.0126
59	+0.9389	−21.0500	−0.4698	−0.0169	−0.0010	+0.0125
60	+0.4383	−20.6228	−0.4605	−0.0034	−0.0007	+0.0122
61	+0.5492	−20.7766	−0.4640	−0.0064	−0.0007	+0.0123
62	+0.2401	−20.4048	−0.4558	+0.0020	−0.0005	+0.0121
63	+0.4422	−20.7082	−0.4624	−0.0036	−0.0007	+0.0123
64	+0.7372	−21.1442	−0.4720	−0.0117	−0.0008	+0.0126
65	+0.6915	−21.1051	−0.4712	−0.0105	−0.0008	+0.0125
66	+0.3495	−20.6071	−0.4602	−0.0010	−0.0006	+0.0122
67	+0.3084	−20.5576	−0.4591	+0.0001	−0.0006	+0.0122
68	+0.8210	−21.4283	−0.4783	−0.0141	−0.0010	+0.0127
69	+0.5671	−21.0215	−0.4693	−0.0071	−0.0007	+0.0125
70	+0.7504	−21.3663	−0.4769	−0.0122	−0.0009	+0.0127
71	+0.4420	−20.8387	−0.4653	−0.0037	−0.0007	+0.0124
72	+0.5317	−21.0455	−0.4699	−0.0061	−0.0007	+0.0125
73	+0.4944	−20.9786	−0.4684	−0.0051	−0.0007	+0.0125
74	+0.3630	−20.7712	−0.4639	−0.0014	−0.0006	+0.0123
75	+0.3166	−20.6943	−0.4622	−0.0002	−0.0006	+0.0123
76	+0.2668	−20.5990	−0.4600	+0.0012	−0.0006	+0.0122
77	+0.4559	−20.9901	−0.4687	−0.0041	−0.0007	+0.0125
78	+0.5012	−21.1086	−0.4713	−0.0054	−0.0007	+0.0125
79	+0.3485	−20.7999	−0.4646	−0.0012	−0.0006	+0.0123
80	+0.2604	−20.6164	−0.4604	+0.0014	−0.0006	+0.0122
81	+0.5193	−21.2192	−0.4738	−0.0059	−0.0007	+0.0126
82	+0.3403	−20.8743	−0.4662	−0.0009	−0.0006	+0.0124
83	+0.3022	−20.7857	−0.4643	+0.0001	−0.0006	+0.0123
84	+0.5510	−21.4476	−0.4789	−0.0070	−0.0008	+0.0127
85	+0.2639	−20.7334	−0.4631	+0.0012	−0.0006	+0.0123
86	+0.5328	−21.4544	−0.4790	−0.0064	−0.0008	+0.0127
87	+0.4028	−21.1205	−0.4717	−0.0028	−0.0006	+0.0125
88	+0.2928	−20.8712	−0.4662	+0.0003	−0.0006	+0.0124
89	+0.0910	−20.3141	−0.4538	+0.0060	−0.0005	+0.0121
90	+0.4602	−21.5325	−0.4808	−0.0045	−0.0008	+0.0128

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TABLE XVI.—FINAL CATALOGUE (cont'd).

No.	Mag. Phot.	Mag. Vis.	R. A. 1888.0 °	′	″	N. P. D. ″	Decl. 1888.0 °	′	″	Y ″	X ″	Number in B. D. M.	Car.
91	11.2	11.8	73	6	24	5426.73	89	29	33.27	+5191.96	+1576.78	.....	.....
92	10.2	10.3	74	34	46	6565.41	88	10	34.59	+6328.00	+1745.46	88 27	679
93	10.8	10.3	75	0	24	2360.14	89	20	39.86	+2279.74	+ 610.57	.....	.....
94	10.4	10.4	75	5	50	5223.42	88	32	56.58	+5047.19	+1343.22	88 26	679
95	11.5	11.5	78	15	12	4716.83	88	41	23.17	+4617.64	+ 960.19	.....	.....
96	11.5	10.6	78	16	58	6891.98	88	5	8.02	+6747.10	+1399.37	.....	.....
97	11.0	10.7	80	20	20	4761.70	88	40	38.30	+4693.75	+ 799.04	.....	.....
98	11.0	10.5	80	29	22	6892.03	88	5	7.97	+6796.04	+1138.55	88 28	734
99	10.1	10.3	82	29	10	5924.86	88	21	15.14	+5873.18	+ 774.67	88 30	744
100	11.2	10.8	83	5	14	2178.92	89	23	41.08	+2163.04	+ 262.25	.....	.....
101	9.6	9.3	83	37	11	4585.70	88	43	34.30	+4556.92	+ 509.55	88 29	739
102	12.0	11.5	84	28	4	2849.37	89	12	30.63	+2836.01	+ 274.69	.....	.....
103	12.0	11.5	84	52	59	3116.82	89	8	3.18	+3104.28	+ 277.98	.....	.....
104	10.4	9.3	84	57	20	5685.86	88	25	14.14	+5663.12	+ 499.88	88 31	763
105	12.0	11.1	88	10	39	3508.81	89	1	31.19	+3506.87	+ 111.59	.....	.....
106	11.8	11.2	88	43	34	1771.64	89	30	28.36	+1771.18	+ 39.39	.....	.....
107	9.6	10.2	89	21	30	5049.44	88	35	50.56	+5048.61	+ 56.54	88 33	791
108	11.1	9.7	90	7	12	3799.01	88	56	40.99	+3798.78	− 7.96	88 32	778
109	11.4	10.8	90	10	24	5490.70	88	28	29.30	+5490.04	− 16.61	.....	.....
110	11.4	11.4	90	13	27	3600.86	88	59	59.14	+3600.65	− 14.09	.....	.....
111	11.4	10.8	90	49	53	4720.84	88	41	19.16	+4719.93	− 68.49	.....	.....
112	11.0	11.0	91	1	48	4015.05	88	53	4.95	+4014.15	− 72.17	.....	.....
113	11.6	10.8	91	24	52	3234.73	89	6	5.27	+3233.61	− 79.84	.....	.....
114	9.1	9.4	91	58	1	5994.83	88	20	5.17	+5990.46	− 205.73	88 35	823
115	11.4	10.4	92	16	1	4024.40	88	52	55.60	+4020.99	− 159.18	.....	.....
116	10.2	9.3	92	21	11	1887.07	89	28	32.93	+1885.45	− 77.48	89 9	*d*
117	11.0	10.2	93	6	36	7282.53	87	58	37.47	+7270.30	− 395.02	87 44	.....
118	10.6	10.4	93	8	8	4943.14	88	37	36.86	+4935.26	− 270.36	88 34	822
119	12.0	11.2	94	58	10	3473.56	89	2	6.44	+3460.33	− 300.88	.....	.....
120	10.7	10.1	97	5	1	4154.97	88	50	45.03	+4122.99	− 512.35	88 36	847
121	10.2	10.3	98	0	20	3262.89	89	5	37.11	+3230.96	− 454.40	89 10	833
122	11.5	10.3	99	38	20	6825.53	88	6	14.47	+6727.91	−1142.64	88 37	912
123	10.7	10.5	100	1	57	809.14	89	46	30.86	+ 796.77	− 140.96	.....	.....
124	10.4	10.3	100	44	54	3444.26	89	2	35.74	+3383.68	− 642.31	89 11	862
125	12.0	12.0	101	19	30	1556.64	89	34	3.36	+1526.31	− 305.68	.....	.....
126	11.4	10.5	104	55	48	6934.88	88	4	25.12	+6699.50	−1786.36	.....	.....
127	10.6	10.4	107	49	11	4382.68	88	46	57.32	+4172.10	−1341.10	88 38	.....
128	11.0	10.2	110	25	48	6681.01	88	8	38.99	+6259.67	−2331.68	88 40	1022
129	11.0	10.6	113	12	12	3530.46	89	1	9.54	+3244.72	−1390.92	.....	.....
130	9.5	9.7	115	13	10	4713.80	88	41	26.20	+4264.12	−2008.31	88 41	1046
131	6.8	7.0	116	8	41	3728.31	88	57	51.69	+3346.65	−1642.75	89 13	1035
132	10.3	10.3	118	21	54	3809.97	88	56	30.03	+3352.35	−1809.96	89 14	1060
133	11.4	10.5	119	11	25	4445.12	88	45	54.88	+3880.32	−2167.77	88 42	1086
134	9.6	9.7	119	14	39	4620.47	88	42	59.53	+4031.24	−2257.06	88 43	1089
135	9.6	10.0	120	19	27	1531.06	88	34	28.94	+1321.57	− 773.01	89 12	*e*

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PRECESSION COEFFICIENTS (cont'd).

No.	dy	dx	$100\,d^2y$	$100\,d^2x$	$10{,}000\,d^3y$	$10{,}000\,d^3x$
	″	″	″	″	″	″
91	+0.3523	−21.2062	−0.4736	−0.0015	−0.0006	+0.0126
92	+0.3900	−21.4568	−0.4792	−0.0027	−0.0007	+0.0127
93	+0.1364	−20.5612	−0.4593	+0.0047	−0.0005	+0.0122
94	+0.3001	−21.1744	−0.4729	−0.0001	−0.0006	+0.0126
95	+0.2145	−21.0796	−0.4709	+0.0023	−0.0005	+0.0125
96	+0.3127	−21.5495	−0.4813	−0.0006	−0.0007	+0.0128
97	+0.1785	−21.0965	−0.4712	+0.0033	−0.0005	+0.0125
98	+0.2544	−21.5604	−0.4815	+0.0009	−0.0007	+0.0128
99	+0.1731	−21.3571	−0.4771	+0.0032	−0.0006	+0.0127
100	+0.0586	−20.5353	−0.4588	+0.0067	−0.0004	+0.0122
101	+0.1129	−21.0663	−0.4706	+0.0050	−0.0005	+0.0125
102	+0.0614	−20.6849	−0.4622	+0.0066	−0.0004	+0.0123
103	+0.0621	−20.7444	−0.4635	+0.0065	−0.0004	+0.0123
104	+0.1117	−21.3109	−0.4760	+0.0048	−0.0006	+0.0127
105	+0.0249	−20.8338	−0.4655	+0.0074	−0.0004	+0.0124
106	+0.0088	−20.4480	−0.4568	+0.0082	−0.0004	+0.0121
107	+0.0126	−21.1752	−0.4731	+0.0076	−0.0004	+0.0126
108	−0.0018	−20.8985	−0.4670	+0.0081	−0.0004	+0.0124
109	−0.0037	−21.2727	−0.4753	+0.0079	−0.0005	+0.0126
110	−0.0031	−20.8545	−0.4660	+0.0082	−0.0004	+0.0124
111	−0.0153	−21.1024	−0.4715	+0.0083	−0.0004	+0.0125
112	−0.0161	−20.9462	−0.4680	+0.0084	−0.0004	+0.0124
113	−0.0178	−20.7731	−0.4641	+0.0087	−0.0004	+0.0123
114	−0.0460	−20.3831	−0.4778	+0.0090	−0.0005	+0.0127
115	−0.0356	−20.9477	−0.4681	+0.0089	−0.0004	+0.0124
116	−0.0173	−20.4735	−0.4574	+0.0088	−0.0004	+0.0122
117	−0.0883	−21.6651	−0.4842	+0.0099	−0.0004	+0.0129
118	−0.0604	−21.1500	−0.4726	+0.0095	−0.0004	+0.0126
119	−0.0672	−20.8235	−0.4653	+0.0099	−0.0004	+0.0124
120	−0.1145	−20.9702	−0.4687	+0.0110	−0.0003	+0.0124
121	−0.1015	−20.7725	−0.4642	+0.0109	−0.0003	+0.0123
122	−0.2553	−21.5454	−0.4816	+0.0145	−0.0003	+0.0128
123	−0.0315	−20.2310	−0.4521	+0.0093	−0.0004	+0.0120
124	−0.1435	−20.8063	−0.4650	+0.0119	−0.0003	+0.0123
125	−0.0683	−20.3935	−0.4557	+0.0102	−0.0004	+0.0121
126	−0.3991	−21.5387	−0.4814	+0.0183	−0.0003	+0.0128
127	−0.2997	−20.9807	−0.4690	+0.0160	−0.0002	+0.0125
128	−0.5210	−21.4411	−0.4793	+0.0215	−0.0002	+0.0127
129	−0.3108	−20.7751	−0.4644	+0.0165	−0.0002	+0.0123
130	−0.4487	−21.0007	−0.4695	+0.0199	−0.0001	+0.0125
131	−0.3671	−20.7976	−0.4649	+0.0178	−0.0002	+0.0123
132	−0.4044	−20.7987	−0.4650	+0.0189	−0.0002	+0.0123
133	−0.4844	−20.9154	−0.4677	+0.0210	−0.0001	+0.0124
134	−0.5043	−20.9487	−0.4683	+0.0214	−0.0001	+0.0124
135	−0.1727	−20.3478	−0.4548	+0.0130	−0.0003	+0.0121

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TABLE XVI.—FINAL CATALOGUE (cont'd).

No.	Mag.		R. A. 1888.0			N. P. D.	Decl. 1888.0			Y	X	Number in	
	Phot.	Vis.	h	m	s	"	°	′	″	"	"	B. D. M.	Car.
136	11.4	10.6	121	20	58	6634.58	88	9	25.42	+5665.02	−3451.08	88 45	1135
137	9.9	9.7	121	39	2	3802.37	88	56	37.63	+3236.63	−1995.13	89 15	1095
138	11.3	10.2	121	59	18	6315.34	88	14	44.66	+5355.56	−3345.01	88 46	1140
139	9.6	10.3	124	46	17	4722.68	88	41	17.32	+3879.02	−2693.12	88 47	1149
140	10.2	10.3	129	1	50	6663.16	88	8	56.84	+5175.10	−4195.29	88 49	1214
141	10.8	10.6	131	57	23	5963.46	88	20	36.54	+4434.13	−3986.39	88 51	.....
142	10.4	10.3	132	37	15	7531.08	87	54	28.92	+5540.51	−5098.49	88 53	1255
143	12.0	12.0	133	1	15	5422.89	88	29	37.11	+3964.25	−3699.42	.....	.....
144	10.9	10.5	133	34	30	1297.98	89	38	22.02	+ 940.34	− 894.70	.....	.....
145	10.2	10.7	134	13	34	4824.80	88	39	35.20	+3457.10	−3364.95	88 52	.....
146	12.0	12.0	136	29	50	2450.65	89	19	9.35	+1686.96	−1777.51	.....	.....
147	9.6	10.3	138	7	20	4343.52	88	47	36.48	+2899.28	−3233.82	88 54	1287
148	11.0	11.0	138	15	41	6088.86	88	18	31.14	+4052.97	−4542.78	.....	.....
149	9.6	9.7	140	13	45	6235.21	88	16	4.79	+3988.17	−4791.70	88 55	1336
150	11.0	10.3	140	36	44	6549.40	88	10	50.60	+4155.34	−5060.99	88 56	1344
151	10.2	10.3	142	20	42	5523.86	88	27	56.14	+3374.15	−4372.73	88 57	1359
152	11.2	12.0	142	52	57	3071.32	89	8	48.68	+1853.32	−2448.98	.....	.....
153	11.0	12.0	143	58	37	3037.90	89	9	22.10	+1786.55	−2456.91	.....	.....
154	11.0	12.0	144	28	55	4848.88	88	39	11.12	+2816.74	−3946.30	.....	.....
155	11.0	11.5	145	43	40	4245.70	88	49	14.30	+2390.69	−3508.27	.....	.....
156	11.0	10.6	146	34	5	5806.87	88	23	13.13	+3198.84	−4845.42	.....	.....
157	11.3	11.5	146	39	41	3919.63	88	54	40.37	+2154.04	−3274.40	.....	.....
158	10.0	10.2	146	44	17	5111.31	88	34	48.69	+2803.09	−4273.49	88 58	1413
159	11.0	10.3	150	30	52	1766.24	89	30	33.76	+ 869.34	−1537.46	89 16	f
160	10.4	10.3	151	5	58	4956.82	88	37	23.18	+2395.36	−4339.08	88 59	1456
161	8.8	8.7	153	39	23	5621.93	88	26	18.07	+2494.43	−5037.46	88 60	1490
162	11.0	11.0	154	5	6	2014.11	89	26	25.89	+ 880.23	−1811.55	.....	.....
163	12.0	12.0	156	43	6	3417.52	89	3	2.48	+1350.72	−3139.09	.....	.....
164	11.0	10.4	158	16	52	4425.76	88	46	14.24	+1637.64	−4111.26	88 62	1549
165	10.5	10.9	162	10	1	5392.87	88	30	7.13	+1651.35	−5133.18	.....	.....
166	9.6	10.2	162	10	25	4907.08	88	38	12.92	+1502.08	−4671.04	88 63	1592
167	12.0	12.0	162	24	16	3324.35	89	4	35.65	+1004.89	−3168.67	.....	.....
168	9.2	9.7	163	25	30	2301.11	89	21	38.89	+ 656.42	−2205.44	89 17	g
169	6.5	7.5	165	22	28	6305.92	88	14	54.08	+1592.00	−6100.61	88 64	1639
170	11.4	11.3	167	4	23	5819.68	88	23	0.32	+1301.74	−5671.44	.....	.....
171	11.5	11.8	167	51	22	5165.72	88	33	54.28	+1086.58	−5049.59	.....	.....
172	11.2	11.5	167	52	12	6885.95	88	5	14.05	+1446.68	−6730.96	.....	.....
173	9.2	9.9	169	10	54	5414.60	88	29	45.40	+1016.18	−5317.75	88 65	1676
174	12.0	11.5	169	57	30	6036.84	88	19	23.16	+1052.46	−5943.52	.....	.....
175	10.6	11.0	171	19	21	2259.83	89	22	20.17	+ 340.94	−2233.92	89 19	.....
176	9.5	9.9	171	42	51	6094.15	88	18	25.85	+ 878.11	−6029.66	88 67	1705
177	9.9	9.9	172	39	42	1617.45	89	33	2.55	+ 206.59	−1604.18	89 18	h
178	9.8	10.3	174	4	36	5745.24	88	24	14.76	+ 592.82	−5713.82	88 68	1737
179	10.0	9.9	175	9	34	4364.68	88	47	15.32	+ 368.28	−4348.79	88 69	1748
180	10.8	10.3	177	13	44	5540.04	88	27	39.96	+ 267.81	−5532.89	88 70	1767

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PRECESSION COEFFICIENTS (cont'd).

No.	dy	dx	100 d^2y	100 d^2x	10,000 d^3y	10,000 d^3x
	"	"	"	"	"	"
136	−0.7711	−21.3085	−0.4766	+0.0283	0.0000	+0.0127
137	−0.4458	−20.7729	−0.4645	+0.0201	−0.0001	+0.0123
138	−0.7474	−21.2403	−0.4750	+0.0278	0.0000	+0.0126
139	−0.6017	−20.9145	−0.4677	+0.0241	0.0000	+0.0124
140	−0.9374	−21.1989	−0.4742	+0.0328	+0.0002	+0.0126
141	−0.8907	−21.0354	−0.4706	+0.0317	+0.0001	+0.0125
142	−1.1392	−21.2777	−0.4761	+0.0381	+0.0002	+0.0126
143	−0.8266	−20.9319	−0.4682	+0.0301	+0.0001	+0.0124
144	−0.1999	−20.2628	−0.4529	+0.0138	−0.0003	+0.0120
145	−0.7519	−20.8200	−0.4657	+0.0281	0.0000	+0.0124
146	−0.3972	−20.4285	−0.4566	+0.0190	−0.0002	+0.0121
147	−0.7226	−20.6964	−0.4629	+0.0274	0.0000	+0.0123
148	−1.0150	−20.9500	−0.4687	+0.0350	+0.0002	+0.0124
149	−1.0706	−20.9351	−0.4685	+0.0365	+0.0002	+0.0124
150	−1.1308	−20.9714	−0.4693	+0.0381	+0.0003	+0.0125
151	−0.9770	−20.7998	−0.4653	+0.0341	+0.0002	+0.0123
152	−0.5472	−20.4650	−0.4575	+0.0229	−0.0001	+0.0121
153	−0.5490	−20.4501	−0.4572	+0.0230	−0.0001	+0.0121
154	−0.8818	−20.6769	−0.4625	+0.0317	+0.0001	+0.0123
155	−0.7839	−20.5830	−0.4604	+0.0291	+0.0001	+0.0122
156	−1.0827	−20.7599	−0.4646	+0.0370	+0.0002	+0.0123
157	−0.7316	−20.5308	−0.4592	+0.0277	0.0000	+0.0122
158	−0.9549	−20.6733	−0.4625	+0.0336	+0.0002	+0.0123
159	−0.3435	−20.2465	−0.4525	+0.0176	−0.0002	+0.0120
160	−0.9695	−20.5825	−0.4605	+0.0341	+0.0002	+0.0122
161	−1.1256	−20.6030	−0.4610	+0.0382	+0.0003	+0.0122
162	−0.4048	−20.2488	−0.4527	+0.0193	−0.0002	+0.0120
163	−0.7014	−20.3521	−0.4551	+0.0271	0.0000	+0.0121
164	−0.9186	−20.4144	−0.4568	+0.0328	+0.0001	+0.0121
165	−1.1469	−20.4152	−0.4568	+0.0389	+0.0003	+0.0121
166	−1.0437	−20.3830	−0.4560	+0.0361	+0.0002	+0.0121
167	−0.7080	−20.2750	−0.4534	+0.0273	0.0000	+0.0120
168	−0.4928	−20.1985	−0.4516	+0.0216	−0.0001	+0.0120
169	−1.3631	−20.3994	−0.4565	+0.0446	+0.0004	+0.0121
170	−1.2672	−20.3360	−0.4552	+0.0421	+0.0004	+0.0121
171	−1.1283	−20.2896	−0.4540	+0.0384	+0.0003	+0.0121
172	−1.5040	−20.3651	−0.4559	+0.0484	+0.0005	+0.0121
173	−1.1882	−20.2733	−0.4537	+0.0401	+0.0003	+0.0120
174	−1.3280	−20.2797	−0.4539	+0.0438	+0.0004	+0.0120
175	−0.4991	−20.1281	−0.4500	+0.0218	−0.0001	+0.0119
176	−1.3473	−20.2406	−0.4531	+0.0443	+0.0004	+0.0120
177	−0.3584	−20.0987	−0.4493	+0.0181	−0.0002	+0.0119
178	−1.2767	−20.1778	−0.4517	+0.0424	+0.0004	+0.0120
179	−0.9717	−20.1309	−0.4504	+0.0343	+0.0002	+0.0119
180	−1.2363	−20.1056	−0.4500	+0.0414	+0.0003	+0.0119

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TABLE XVI.—FINAL CATALOGUE (cont'd).

No.	Mag. Phot.	Mag. Vis.	R. A. 1888.0 h	m	s	N. P. D. s	Decl. 1888.0 °	′	″	Y ″	X ″	Number in B. D. M.	Car.
181	10.5	11.3	177	29	28	4559.02	88	44	0.98	+ 199.55	−4554.28	.....	.....
182	10.8	10.9	180	26	56	2687.17	89	15	12.83	− 21.05	−2687.01	89 20	.....
183	12.0	11.5	180	44	45	3061.32	89	8	58.68	− 39.85	−3060.95	.....	.....
184	6.4	6.2	183	35	36	6045.38	88	19	14.62	− 378.84	−6032.63	88 71	1834
185	9.0	9.9	183	49	4	5756.50	88	24	3.50	− 383.24	−5742.98	88 72	1837
186	9.3	10.1	185	13	56	5470.46	88	28	49.54	− 498.81	−5447.04	88 73	1855
187	12.0	11.8	185	43	19	3246.22	89	5	53.78	− 323.64	−3229.91	.....	.....
188	11.1	11.5	188	7	58	4176.76	88	50	23.24	− 590.84	−4134.48	.....	.....
189	10.7	11.0	191	13	24	2067.00	89	25	33.00	− 402.30	−2027.44	.....	.....
190	10.7	11.5	191	16	59	2540.66	89	17	39.34	− 497.08	−2491.49	.....	.....
191	8.8	9.7	191	22	9	2547.70	89	17	32.30	− 502.22	−2497.64	89 21	*i*
192	8.8	9.6	191	53	20	5091.97	88	35	8.03	−1048.91	−4982.24	88 75	1922
193	9.4	9.1	193	33	36	3719.06	88	58	0.94	− 871.93	−3615.19	89 22	1951
194	11.0	11.0	194	48	42	5482.12	88	28	37.88	−1401.30	−5299.34	.....	.....
195	10.8	11.3	194	52	40	4456.33	88	45	43.67	−1144.11	−4306.59	.....	.....
196	10.5	10.3	195	35	14	2274.04	89	22	5.96	− 611.03	−2190.36	89 23	*k*
197	12.0	11.0	195	39	25	3201.46	89	6	38.54	− 863.96	−3082.54	.....	.....
198	10.8	10.8	196	26	0	4928.98	88	37	51.02	−1394.27	−4727.18	.....	.....
199	8.0	7.5	196	34	53	6297.58	88	15	2.42	−1796.90	−6034.76	88 76	1972
200	10.6	10.3	196	52	15	862.10	89	45	37.90	− 250.19	− 824.99	89 26	*m*
201	11.3	11.2	197	5	39	4173.91	88	50	26.09	−1226.81	−3989.25	.....	.....
202	12.0	11.2	197	9	28	2258.50	89	22	21.50	− 666.25	−2157.94	.....	.....
203	11.5	11.2	198	23	16	5009.08	88	36	30.92	−1579.94	−4752.86	.....	.....
204	11.6	11.5	199	9	39	4410.34	88	46	29.66	−1447.45	−4165.70	.....	.....
205	11.1	11.2	199	30	55	4514.51	88	44	45.49	−1507.99	−4254.82	.....	.....
206	11.7	11.0	200	9	43	3636.93	88	59	23.07	−1253.49	−3413.88	.....	.....
207	10.9	11.2	200	18	19	4236.52	88	49	23.48	−1470.06	−3972.96	.....	.....
208	12.0	12.0	200	43	26	4517.41	88	44	42.59	−1598.43	−4224.78	.....	.....
209	10.9	10.7	200	59	35	3107.09	89	8	12.91	−1113.09	−2900.75	.....	.....
210	11.5	12.0	201	44	5	811.27	89	46	28.73	− 300.42	− 753.59	.....	.....
211	7.8	8.5	202	17	25	6750.52	88	7	29.48	−2560.01	−6244.97	88 77	2048
212	9.6	9.7	202	47	46	4756.20	88	40	43.80	−1842.64	−4384.30	88 78	2068
213	11.0	10.6	202	55	29	4877.59	88	38	42.41	−1899.74	−4491.92	88 79	2069
214	10.8	11.5	203	49	6	3634.17	88	59	25.83	−1467.54	−3324.48	.....	.....
215	11.7	11.8	203	50	29	4011.43	88	53	8.57	−1621.34	−3668.90	.....	.....
216	12.0	11.5	205	31	34	5083.12	88	35	16.88	−2190.21	−4586.50	.....	.....
217	11.9	10.8	206	4	42	3400.48	89	3	19.52	−1494.78	−3054.15	.....	.....
218	12.0	10.9	206	30	59	4253.26	88	49	6.74	−1898.75	−3805.57	.....	.....
219	10.0	10.8	208	52	54	6066.12	88	18	53.88	−2929.52	−5310.84	.....	.....
220	10.8	10.7	210	18	48	3710.82	88	58	9.18	−1872.85	−3203.29	.....	.....
221	10.5	10.6	210	49	35	6397.43	88	13	22.57	−3277.77	−5492.75	88 81	.....
222	10.2	10.3	211	5	0	5570.87	88	27	9.13	−2875.80	−4770.40	88 82	2148
223	9.2	10.1	211	37	1	1657.89	89	32	22.11	− 869.12	−1411.80	89 25	*l*
224	10.0	10.3	212	29	21	6118.76	88	18	1.24	−3286.14	−5160.38	88 23	2160
225	10.3	10.3	213	31	36	5552.32	88	27	27.68	−3066.31	−4628.02	88 84	2173

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PRECESSION COEFFICIENTS (cont'd).

No.	dy	dx	100 d^2y	100 d^2x	10,000 d^2y	10,000 d^2x
	"	"	"	"	"	"
181	−1.0176	−20.0928	−0.4495	+0.0356	+0.0002	+0.0119
182	−0.6004	−20.0467	−0.4483	+0.0246	0.0000	+0.0119
183	−0.6839	−20.0420	−0.4482	+0.0268	0.0000	+0.0119
184	−1.3479	−19.9599	−0.4468	+0.0445	+0.0004	+0.0118
185	−1.2832	−19.9597	−0.4468	+0.0428	+0.0004	+0.0118
186	−1.2171	−19.9345	−0.4462	+0.0411	+0.0003	+0.0118
187	−0.7217	−19.9783	−0.4468	+0.0278	0.0000	+0.0119
188	−0.9238	−19.9170	−0.4457	+0.0332	+0.0001	+0.0118
189	−0.4530	−19.9621	−0.4463	+0.0208	−0.0001	+0.0118
190	−0.5567	−19.9404	−0.4458	+0.0235	−0.0001	+0.0118
191	−0.5581	−19.9393	−0.4458	+0.0235	−0.0001	+0.0118
192	−1.1132	−19.8126	−0.4434	+0.0383	+0.0003	+0.0118
193	−0.8078	−19.8550	−0.4442	+0.0302	+0.0001	+0.0118
194	−1.1841	−19.7329	−0.4416	+0.0403	+0.0003	+0.0117
195	−0.9622	−19.7928	−0.4429	+0.0344	+0.0002	+0.0117
196	−0.4894	−19.9154	−0.4453	+0.0217	−0.0001	+0.0118
197	−0.6888	−19.8577	−0.4441	+0.0270	0.0000	+0.0118
198	−1.0562	−19.7359	−0.4417	+0.0369	+0.0002	+0.0117
199	−1.3484	−19.6422	−0.4397	+0.0446	+0.0004	+0.0117
200	−0.1843	−19.9970	−0.4470	+0.0135	−0.0003	+0.0119
201	−0.8914	−19.7749	−0.4425	+0.0325	+0.0001	+0.0117
202	−0.4822	−19.9030	−0.4450	+0.0215	−0.0001	+0.0118
203	−1.0620	−19.6942	−0.4407	+0.0370	+0.0002	+0.0117
204	−0.9308	−19.7251	−0.4414	+0.0336	+0.0002	+0.0117
205	−0.9507	−19.7114	−0.4410	+0.0340	+0.0002	+0.0117
206	−0.7628	−19.7699	−0.4423	+0.0291	+0.0001	+0.0117
207	−0.8877	−19.7203	−0.4412	+0.0324	+0.0001	+0.0117
208	−0.9440	−19.6911	−0.4405	+0.0339	+0.0002	+0.0117
209	−0.6481	−19.8021	−0.4429	+0.0260	0.0000	+0.0118
210	−0.1684	−19.9859	−0.4467	+0.0131	−0.0003	+0.0119
211	−1.3954	−19.4703	−0.4359	+0.0461	+0.0004	+0.0116
212	−0.9796	−19.6360	−0.4393	+0.0349	+0.0002	+0.0117
213	−1.0037	−19.6230	−0.4390	+0.0356	+0.0002	+0.0116
214	−0.7428	−19.7221	−0.4412	+0.0285	0.0000	+0.0117
215	−0 8198	−19.6870	−0.4404	+0.0306	+0.0001	+0.0117
216	−1 0248	−19.5576	−0.4376	+0.0362	+0.0002	+0.0116
217	−0.6824	−19.7164	−0.4410	+0.0269	0.0000	+0.0117
218	−0.8503	−19.6246	−0.4390	+0.0315	+0.0001	+0.0116
219	−1.1866	−19.3898	−0.4340	+0.0405	+0.0003	+0.0115
220	−0.7157	−19.6314	−0.4391	+0.0279	0.0000	+0.0117
221	−1.2273	−19.3110	−0.4322	+0.0417	+0.0003	+0.0115
222	−1.0659	−19.4032	−0.4342	+0.0373	+0.0002	+0.0115
223	−0.3154	−19.8582	−0.4440	+0.0171	−0.0002	+0.0118
224	−1.1530	−19.3101	−0.4322	+0.0398	+0.0003	+0.0115
225	−1.0341	−19.3607	−0.4332	+0.0365	+0.0002	+0.0115

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TABLE XVI.—FINAL CATALOGUE (cont'd).

No.	Mag.		R. A. 1888.0			N. P. D.	Decl. 1888.0			Y	X	Number in	
	Phot.	Vis.										B. D. M.	Car.
			h	m	s	"	°	′	″	"	"		
226	9.8	9.7	213	46	38	5776.82	88	23	43.18	−3211.29	−4801.10	88 85	2174
227	11.8	11.5	215	48	40	2185.76	89	23	34.24	−1278.89	−1772.51	.....	.....
228	11.8	11.5	215	53	36	2655.06	89	15	44.94	−1556.56	−2150.84	89 24	.....
229	10.2	10.6	215	58	50	5543.76	88	27	36.24	−3256.64	−4485.57	88 87	2205
230	11.4	11.8	216	26	51	6360.26	88	13	59.74	−3777.94	−5115.38	.....	.....
231	11.0	11.0	216	34	56	4662.82	88	42	17.18	−2778.69	−3743.94	.....	.....
232	11.1	11.5	217	21	31	2426.02	89	19	33.98	−1472.08	−1928.29	.....	.....
233	10.2	10.3	218	9	14	4842.72	88	39	17.28	−2991.45	−3807.75	88 88	2246
234	12.0	12.0	223	50	10	4150.48	88	50	49.52	−2874.42	−2993.64	.....	.....
235	10.8	11.2	224	30	42	4209.68	88	49	50.32	−2951.01	−3001.75	.....	.....
236	11.8	11.2	224	55	2	5596.56	88	26	43.44	−3951.15	−3962.60	.....	.....
237	11.5	10.3	225	19	12	6485.80	88	11	54.20	−4610.93	−4559.72	88 89	2297
238	12.0	12.0	226	31	51	2390.40	89	20	9.60	−1734.78	−1644.47	.....	.....
239	9.2	9.0	227	49	40	5611.26	88	26	28.74	−4158.15	−3766.71	88 90	2333
240	10.8	11.2	228	6	53	7096.76	88	1	43.24	−5282.38	−4737.14	.....	.....
241	12.0	11.0	228	11	14	2102.92	89	24	57.08	−1567.34	−1401.99	.....	.....
242	9.8	10.3	228	28	52	3834.65	88	56	5.35	−2870.99	−2541.72	89 27	2369
243	11.7	10.5	229	25	26	1374.32	89	37	5.68	−1043.85	− 893.93	.....	.....
244	12.0	11.8	229	42	37	5929.31	88	21	10.69	−4522.16	−3833.68	.....	.....
245	9.8	10.1	230	19	26	6516.65	88	11	23.35	−5014.81	−4159.85	88 91	2351
246	11.5	11.2	231	3	45	7268.94	87	58	51.06	−5652.83	−4567.38	.....	.....
247	11.0	11.0	231	31	8	5672.96	88	25	27.04	−4440.32	−3529.59	.....	.....
248	12.0	12.0	231	58	45	4406.08	88	46	33.92	−3470.78	−2713.71	.....	.....
249	12.0	12.0	236	26	28	1771.79	89	30	28.21	−1476.45	− 979.42	.....	.....
250	9.8	10.3	237	21	44	1153.89	89	40	46.11	− 971.68	− 622.32	89 29	o
251	12.0	12.0	237	32	48	4361.42	88	47	18.58	−3680.02	−2340.22	.....	.....
252	11.2	10.5	238	14	37	1912.84	89	28	7.16	−1626.46	−1006.73	.....	.....
253	12.0	12.0	238	23	3	3393.30	89	3	26.70	−2889.54	−1778.76	.....	.....
254	12.0	12.0	238	27	25	3746.42	88	57	33.58	−3192.69	−1959.79	.....	.....
255	9.8	10.3	240	3	36	6984.14	88	3	35.86	−6050.94	−3485.07	88 93	2449
256	11.5	10.6	240	31	13	6305.83	88	14	54.17	−5488.55	−3102.71	.....	.....
257	12.0	11.0	241	25	40	3733.29	88	57	46.71	−3278.45	−1785.41	.....	.....
258	11.4	10.8	242	43	20	3793.46	88	56	46.54	−3371.42	−1738.46	.....	.....
259	10.3	10.5	242	44	40	3868.93	88	55	31.07	−3439.17	−1771.71	.....	.....
260	11.2	10.7	242	58	48	3804.30	88	56	35.70	−3388.86	−1728.20	.....	.....
261	10.2	8.8	243	28	20	5818.18	88	23	1.82	−5204.93	−2598.23	88 94	2494
262	12.0	12.0	243	50	44	5826.38	88	22	53.62	−5229.11	−2567.88	.....	.....
263	12.0	11.0	243	53	20	3099.47	89	8	20.53	−2783.04	−1364.07	.....	.....
264	10.6	10.6	244	10	36	5817.12	88	23	2.88	−5235.54	−2533.59	88 95	.....
265	11.3	11.0	244	34	36	2811.44	89	13	8.56	−2539.10	−1206.92	.....	.....
266	9.9	9.0	246	46	56	2686.20	89	15	13.80	−2468.58	−1058.94	89 28	*
267	9.8	9.7	247	34	45	5506.58	88	28	13.42	−5089.74	−2100.00	88 96	2533
268	11.5	11.5	247	35	38	1932.65	89	27	47.35	−1786.72	− 736.66	.....	.....
269	12.0	12.0	247	56	15	1796.00	89	30	4.00	−1664.46	− 674.60	.....	.....
270	11.5	12.0	248	20	28	4136.18	88	51	3.82	−3843.90	−1526.48	.....	.....

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PRECESSION COEFFICIENTS (cont'd).

No.	dy	dx	100 d^2y	100 d^2x	10,000 d^3y	10,000 d^3x
	"	"	"	"	"	"
226	−1.0727	−19.3277	−0.4326	+0.0375	+0.0002	+0.0115
227	−0.3960	−19.7662	−0.4418	+0.0193	−0.0002	+0.0117
228	−0.4806	−19.7036	−0.4405	+0.0216	−0.0001	+0.0117
229	−1.0022	−19.3181	−0.4322	+0.0357	+0.0002	+0.0115
230	−1.1430	−19.1995	−0.4297	+0.0395	+0.0003	+0.0114
231	−0.8365	−19.4271	−0.4345	+0.0312	+0.0001	+0.0115
232	−0.4308	−19.7228	−0.4410	+0.0203	−0.0001	+0.0117
233	−0.8508	−19.3791	−0.4335	+0.0316	+0.0001	+0.0115
234	−0.6689	−19.4067	−0.4341	+0.0268	0.0000	+0.0115
235	−0.6707	−19.3895	−0.4337	+0.0268	0.0000	+0.0115
236	−0.8854	−19.1629	−0.4287	+0.0326	+0.0001	+0.0114
237	−1.0188	−19.0128	−0.4254	+0.0363	+0.0002	+0.0113
238	−0.3674	−19.6641	−0.4396	+0.0185	−0.0002	+0.0117
239	−0.8416	−19.1165	−0.4276	+0.0316	+0.0001	+0.0113
240	−1.0585	−18.8609	−0.4222	+0.0375	+0.0002	+0.0112
241	−0.3133	−19.7018	−0.4404	+0.0171	−0.0002	+0.0117
242	−0.5679	−19.4081	−0.4341	+0.0241	−0.0001	+0.0115
243	−0.1997	−19.8194	−0.4430	+0.0140	−0.0003	+0.0118
244	−0.8566	−19.0344	−0.4258	+0.0320	+0.0001	+0.0113
245	−0.9295	−18.9225	−0.4234	+0.0340	+0.0002	+0.0112
246	−1.0205	−18.7775	−0.4202	+0.0365	+0.0001	+0.0112
247	−0.7886	−19.0534	−0.4262	+0.0302	+0.0001	+0.0113
248	−0.6063	−19.2730	−0.4311	+0.0252	0.0000	+0.0114
249	−0.2188	−19.7224	−0.4407	+0.0146	−0.0003	+0.0117
250	−0.1390	−19.8357	−0.4434	+0.0124	−0.0003	+0.0118
251	−0.5229	−19.2263	−0.4299	+0.0230	−0.0001	+0.0114
252	−0.2249	−19.6888	−0.4400	+0.0148	−0.0003	+0.0117
253	−0.3974	−19.4048	−0.4338	+0.0196	−0.0002	+0.0115
254	−0.4379	−19.3364	−0.4324	+0.0206	−0.0001	+0.0115
255	−0.7787	−18.6896	−0.4181	+0.0301	0.0000	+0.0111
256	−0.6933	−18.8173	−0.4208	+0.0278	−0.0001	+0.0112
257	−0.3989	−19.3173	−0.4318	+0.0197	−0.0002	+0.0115
258	−0.3884	−19.2964	−0.4314	+0.0194	−0.0002	+0.0115
259	−0.3959	−19.2812	−0.4310	+0.0196	−0.0002	+0.0114
260	−0.3861	−19.2925	−0.4313	+0.0194	−0.0002	+0.0115
261	−0.5806	−18.8821	−0.4224	+0.0247	−0.0001	+0.0112
262	−0.5738	−18.8767	−0.4222	+0.0246	−0.0001	+0.0112
263	−0.3048	−19.4290	−0.4343	+0.0171	−0.0002	+0.0115
264	−0.5661	−18.8753	−0.4221	+0.0243	−0.0001	+0.0112
265	−0.2697	−19.4839	−0.4355	+0.0162	−0.0002	+0.0116
266	−0.2366	−19.4998	−0.4358	+0.0152	−0.0003	+0.0116
267	−0.4692	−18.9087	−0.4228	+0.0218	−0.0001	+0.0112
268	−0.1646	−19.6530	−0.4392	+0.0132	−0.0003	+0.0117
269	−0.1507	−19.6804	−0.4398	+0.0128	−0.0003	+0.0117
270	−0.3411	−19.1901	−0.4290	+0.0182	−0.0002	+0.0114

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TABLE XVI.—FINAL CATALOGUE (cont'd).

No.	Mag. Phot.	Mag. Vis.	R. A. 1888 o	N. P. D.	Decl. 1888.o	Y	X	Number in B. D. M.	Number in Car.
			o ′ ″	″	o ′ ″	″	″		
271	11.0	10.6	248 42 17	5939.63	88 21 0.37	−5533.31	−2156.82	.....	.....
272	11.2	11.0	249 3 42	4119.78	88 51 20.22	−3847.48	−1472.16	.....	.....
273	10.2	10.3	249 15 10	6455.00	88 12 25.00	−6035.41	−2286.28	88 97	2538
274	10.0	10.5	250 23 54	6884.56	88 5 15.44	−6484.37	−2309.19	88 98	2551
275	12.0	12.0	251 28 55	4129.38	88 51 10.62	−3915.32	−1311.42	.....	.....
276	9.8	10.2	253 1 47	6145.21	88 17 34.79	−5876.76	−1793.38	88 99	2584
277	10.8	10.6	254 30 55	6541.86	88 10 58.14	−6303.34	−1746.26	.....	.....
278	11.0	11.5	254 36 39	6052.57	88 19 7.43	−5834.71	−1605.96	.....	.....
279	10.2	10.0	254 55 53	732.01	89 47 47.99	− 706.84	− 190.30	89 35	r
280	12.0	11.8	255 4 40	4287.07	88 48 32.93	−4142.20	−1103.88	.....	.....
281	12.0	12.0	256 5 52	4986.45	88 36 53.55	−4839.91	−1197.96	.....	.....
282	11.0	11.0	256 17 36	5652.64	88 25 47.36	−5490.97	−1339.23	.....	.....
283	11.0	10.6	256 59 42	6719.86	88 8 0.14	−6546.33	−1511.94	.....	.....
284	11.4	11.0	258 4 42	5473.68	88 28 46.32	−5354.99	−1130.59	.....	.....
285	9.1	8.7	258 26 19	6520.90	88 11 19.10	−6387.54	−1306.69	88 100	2639
286	11.8	11.0	260 21 39	5290.98	88 31 49.02	−5215.70	− 885.84	.....	.....
287	12.0	11.8	260 53 23	6031.33	88 19 28.67	−5954.40	− 954.84	.....	.....
288	11.0	10.3	262 58 34	1230.64	89 39 29.36	−1221.39	− 150.49	89 31	p
289	11.8	12.0	263 15 27	4662.48	88 42 17.52	−4629.84	− 547.36	.....	.....
290	12.0	12.0	263 36 21	2852.70	89 12 27.30	−2834.86	− 317.69	.....	.....
291	11.0	11.0	263 51 20	3212.84	89 6 27.16	−3194.25	− 343.87	.....	.....
292	12.0	12.0	264 18 9	4229.36	88 49 30.64	−4208.17	− 419.85	.....	.....
293	11.0	11.0	265 21 53	6547.79	88 10 52.21	−6525.27	− 529.05	.....	.....
294	10.6	10.5	265 29 4	6381.80	88 13 38.20	−6360.98	− 502.36	.....	.....
295	12.0	12.0	265 29 13	329.43	89 54 30.57	− 328.41	− 25.92	.....	.....
296	9.4	9.3	265 40 26	4726.00	88 41 14.00	−4712.13	− 356.47	88 101	2740
297	11.1	10.5	265 43 23	4256.46	88 49 3.54	−4244.31	− 317.41	.....	.....
298	10.2	10.1	266 11 39	340.89	89 54 19.11	− 340.14	− 22.63	89 37	t
299	12.0	12.0	267 6 14	5118.07	88 34 41.93	−5111.00	− 258.56	.....	.....
300	9.3	9.9	268 4 11	5098.82	88 35 1.18	−5095.41	− 171.73	88 102	2762
301	9.9	10.0	268 28 42	2978.25	89 10 21.75	−2977.10	− 79.08	89 30	2818
302	9.6	9.7	269 49 45	7334.24	87 57 45.76	−7332.65	− 21.86	87 168	2752
303	12.0	10.3	270 24 31	6918.08	88 4 41.92	−6916.60	+ 49.33	88 103	2766
304	8.0	8.0	270 30 4	6295.95	88 15 4.05	−6294.73	+ 55.06	88 104	2770
305	9.0	8.4	270 46 0	4549.62	88 44 10.38	−4548.84	+ 60.87	88 105	2793
306	11.6	11.5	271 55 28	3411.87	89 3 8.13	−3409.78	+ 114.57	.....	.....
307	11.6	10.7	271 56 56	4727.44	88 41 12.56	−4724.29	+ 160.76	.....	.....
308	11.4	10.5	271 58 20	7040.82	88 2 39.18	−7035.29	+ 242.26	.....	.....
309	12.0	12.0	273 10 13	1972.15	89 27 7.85	−1969.10	+ 109.07	.....	.....
310	9.9	10.2	273 57 40	3995.27	88 53 24.73	−3985.47	+ 275.97	88 106	2848
311	12.0	12.0	274 25 50	2913.36	89 11 26.64	−2904.55	+ 225.05	.....	.....
312	12.0	11.5	274 45 55	5486.72	88 28 33.28	−5467.11	+ 455.75	.....	.....
313	10.7	9.7	275 5 11	3730.22	88 57 49.78	−3715.32	+ 330.69	88 107	2866
314	9.8	8.5	275 53 50	7230.12	87 59 29.88	−7190.38	+ 742.70	87 173	2819
315	12.0	12.0	276 25 2	1229.04	89 39 30.96	−1221.33	+ 137.37	.....	.....

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PRECESSION COEFFICIENTS (cont'd).

No.	dy	dx	100 d^2y	100 d^2x	10,000 d^2y	10,000 d^2x
	"	"	"	"	"	"
271	−0.4819	−18.8084	−0.4206	+0.0222	−0.0002	+0.0112
272	−0.3289	−19.1893	−0.4290	+0.0178	−0.0002	+0.0114
273	−0.5108	−18.6948	−0.4180	+0.0230	−0.0002	+0.0111
274	−0.5160	−18.5930	−0.4158	+0.0232	−0.0002	+0.0110
275	−0.2930	−19.1742	−0.4286	+0.0169	−0.0002	+0.0114
276	−0.4007	−18.7311	−0.4188	+0.0200	−0.0003	+0.0111
277	−0.3902	−18.6346	−0.4166	+0.0199	−0.0003	+0.0111
278	−0.3588	−18.7408	−0.4190	+0.0190	−0.0003	+0.0111
279	−0.0425	−19.8951	−0.4446	+0.0098	−0.0004	+0.0118
280	−0.2466	−19.1232	−0.4275	+0.0157	−0.0003	+0.0114
281	−0.2677	−18.9658	−0.4239	+0.0164	−0.0002	+0.0113
282	−0.2992	−18.8186	−0.4207	+0.0174	−0.0003	+0.0112
283	−0.3378	−18.5797	−0.4153	+0.0185	−0.0003	+0.0110
284	−0.2526	−18.8495	−0.4214	+0.0160	−0.0003	+0.0112
285	−0.2920	−18.6158	−0.4161	+0.0173	−0.0003	+0.0111
286	−0.1979	−18.8811	−0.4220	+0.0146	−0.0003	+0.0112
287	−0.2134	−18.7141	−0.4183	+0.0150	−0.0004	+0.0111
288	−0.0336	−19.7798	−0.4420	+0.0097	−0.0004	+0.0117
289	−0.1223	−19.0135	−0.4249	+0.0124	−0.0003	+0.0113
290	−0.0710	−19.4178	−0.4339	+0.0109	−0.0004	+0.0115
291	−0.0768	−19.3369	−0.4321	+0.0110	−0.0004	+0.0115
292	−0.0938	−19.1086	−0.4271	+0.0117	−0.0003	+0.0113
293	−0.1182	−18.5850	−0.4153	+0.0126	−0.0004	+0.0110
294	−0.1122	−18.6222	−0.4162	+0.0125	−0.0004	+0.0111
295	−0.0058	−19.9796	−0.4465	+0.0086	−0.0004	+0.0119
296	−0.0797	−18.9949	−0.4244	+0.0114	−0.0004	+0.0113
297	−0.0709	−19.1005	−0.4268	+0.0111	−0.0004	+0.0113
298	−0.0051	−19.9770	−0.4464	+0.0087	−0.0004	+0.0119
299	−0.0578	−18.9049	−0.4224	+0.0108	−0.0004	+0.0112
300	−0.0384	−18.9085	−0.4225	+0.0103	−0.0004	+0.0112
301	−0.0177	−19.3858	−0.4331	+0.0095	−0.0004	+0.0115
302	−0.0049	−18.4020	−0.4112	+0.0097	−0.0005	+0.0109
303	+0.0110	−18.4964	−0.4133	+0.0093	−0.0005	+0.0110
304	+0.0123	−18.6372	−0.4165	+0.0092	−0.0005	+0.0111
305	+0.0136	−19.0318	−0.4252	+0.0088	−0.0004	+0.0113
306	+0.0256	−19.2885	−0.4310	+0.0084	−0.0004	+0.0114
307	+0.0359	−18.9922	−0.4243	+0.0083	−0.0004	+0.0113
308	+0.0541	−18.4694	−0.4127	+0.0082	−0.0005	+0.0110
309	+0.0244	−19.6121	−0.4382	+0.0082	−0.0004	+0.0116
310	+0.0617	−19.1588	−0.4281	+0.0075	−0.0004	+0.0114
311	+0.0503	−19.4021	−0.4335	+0.0077	−0.0004	+0.0115
312	+0.1018	−18.8244	−0.4205	+0.0067	−0.0006	+0.0112
313	+0.0739	−19.2197	−0.4294	+0.0071	−0.0004	+0.0114
314	+0.1659	−18.4342	−0.4118	+0.0052	−0.0006	+0.0109
315	+0.0307	−19.7798	−0.4420	+0.0080	−0.0004	+0.0117

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TABLE XVI.—FINAL CATALOGUE (cont'd).

No.	Mag. Phot.	Mag. Vis.	R. A. 1888.0	N. P. D.	Decl. 1888.0	Y	X	Number in B. D. M.	Number in Car.
			° ′ ″	″	° ′ ″	″	″		
316	10.1	10.3	277 1 32	1759.24	89 30 40.76	−1746.01	+ 215.17	89 33	q
317	9.8	10.3	279 35 20	5090.62	88 35 9.38	−5018.99	+ 847.90	88 108	2889
318	12.0	12.0	279 40 55	2286.46	89 21 53.54	−2253.84	+ 384.53	.....	.....
319	11.5	11.0	279 47 48	3335.10	89 4 24.90	−3286.33	+ 567.45	.....	.....
320	11.0	11.5	280 25 48	5821.45	88 22 58.55	−5724.49	+1053.74	.....	.....
321	11.8	11.5	280 40 12	4923.29	88 37 56.71	−4837.70	+ 911.47	.....	.....
322	11.4	11.0	281 35 52	1212.17	89 39 47.83	−1187.41	+ 243.69	.....	.....
323	10.2	10.3	281 36 6	2622.03	89 16 17.97	−2568.39	+ 527.29	89 32	2977
324	11.2	11.5	282 4 42	5182.26	88 33 37.74	−5067.00	+1084.27	.....	.....
325	11.8	12.0	282 52 14	6542.98	88 10 57.02	−6377.53	+1457.20	.....	.....
326	12.0	12.0	284 11 6	4964.41	88 37 15.59	−4812.58	+1216.43	.....	.....
327	8.6	9.3	284 42 21	4960.82	88 37 19.18	−4797.86	+1259.21	88 110	2942
328	11.0	12.0	285 30 35	6410.69	88 13 9.31	−6176.24	+1713.95	.....	.....
329	10.1	9.9	285 42 2	2430.70	89 19 29.30	−2339.95	+ 657.76	89 34	3023
330	10.2	9.7	286 15 54	6788.06	88 6 51.94	−6515.20	+1900.86	88 109	2936
331	11.5	10.7	287 5 0	3708.92	88 58 11.08	−3545.08	+1089.48	.....	.....
332	10.6	10.7	287 44 0	4749.71	88 40 50.29	−4523.62	+1446.57	.....	.....
333	9.2	9.7	289 35 14	6706.44	88 8 13.56	−6317.23	+2247.88	88 111	2976
334	11.5	12.0	291 37 27	502.90	89 51 37.10	− 467.51	+ 185.33	.....	.....
335	10.8	10.6	292 6 29	1593.81	89 33 26.19	−1476.61	+ 599.83	.....	.....
336	12.0	12.0	292 42 8	4832.35	88 39 27.68	−4457.54	+1864.83	.....	.....
337	12.0	12.0	293 10 41	3078.05	89 8 41.95	−2829.51	+1211.45	.....	.....
338	11.9	11.2	293 38 29	1055.58	89 42 24.42	− 966.98	+ 423.30	.....	.....
339	11.2	10.8	293 47 12	5223.42	88 32 56.58	−4779.20	+2106.55	.....	.....
340	8.0	6.5	293 55 27	3735.48	88 57 44.52	−3414.36	+1514.76	88 112	3058
341	11.5	11.2	294 19 58	4444.12	88 45 55.88	−4049.02	+1831.00	.....	.....
342	11.5	12.0	294 41 53	5552.13	88 27 27.87	−5043.61	+2319.59	.....	.....
343	11.5	12.0	294 55 5	5487.64	88 28 32.36	−4976.21	+2311.78	.....	.....
344	12.0	12.0	295 19 52	5286.77	88 31 53.23	−4777.93	+2261.69	.....	.....
345	11.8	12.0	295 31 36	5879.68	88 22 0.32	−5305.02	+2533.39	.....	.....
346	11.0	11.2	295 33 32	5217.49	88 33 2.51	−4706.41	+2250.78	.....	.....
347	11.5	12.0	296 51 6	5854.63	88 22 25.37	−5222.68	+2644.08	.....	.....
348	10.2	10.3	297 14 7	1291.63	89 38 28.37	−1148.42	+ 591.10	89 36	s
349	10.8	10.1	297 57 38	6877.34	88 5 22.66	−6078.41	+3223.92	87 183	3060
350	11.2	10.6	298 4 3	4661.11	88 42 18.89	−4112.59	+2192.92	88 113	.....
351	8.5	8.3	298 14 26	4843.04	88 39 16.96	−4266.17	+2291.39	88 114	3082
352	12.0	10.4	299 0 24	7217.30	87 59 42.70	−6310.69	+3499.03	87 184	3070
353	9.9	10.2	300 12 28	4069.37	88 52 10.63	−3516.54	+2047.32	88 116	3117
354	8.9	8.8	300 40 16	5257.24	88 32 22.76	−4521.32	+2681.48	88 115	3106
355	12.0	12.0	301 27 26	3275.12	89 5 24.88	−2793.66	+1709.09	.....	.....
356	8.4	8.5	302 20 36	4351.45	88 47 28.55	−3676.08	+2327.82	88 117	3138
357	12.0	10.8	303 46 54	4855.99	88 39 4.01	−4035.75	+2699.82	.....	.....
358	11.5	11.0	304 50 50	5745.65	88 24 14.35	−4714.72	+3282.58	.....	.....
359	11.5	10.7	304 51 16	5341.48	88 30 58.52	−4382.75	+3052.27	.....	.....
360	11.0	10.7	304 57 8	5173.68	88 33 46.32	−4240.05	+2963.65	.....	.....

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PRECESSION COEFFICIENTS (cont'd).

No.	dy	dx	100 d^2y	100 d^2x	10,000 d^3y	10,000 d^3x
	"	"	"	"	"	"
316	+0.0481	−19.6622	−0.4393	+0.0075	−0.0004	+0.0117
317	+0.1895	−18.9256	−0.4228	+0.0043	−0.0005	+0.0112
318	+0.0859	−19.5482	−0.4367	+0.0066	−0.0005	+0.0116
319	+0.1268	−19.3162	−0.4315	+0.0057	−0.0005	+0.0115
320	+0.2354	−18.7660	−0.4193	+0.0032	−0.0006	+0.0111
321	+0.2037	−18.9665	−0.4236	+0.0039	−0.0005	+0.0113
322	+0.0544	−19.7875	−0.4422	+0.0074	−0.0004	+0.0117
323	+0.1178	−19.4776	−0.4351	+0.0059	−0.0005	+0.0116
324	+0.2423	−18.9146	−0.4225	+0.0029	−0.0005	+0.0112
325	+0.3256	−18.6180	−0.4158	+0.0008	−0.0006	+0.0111
326	+0.2718	−18.9720	−0.4237	+0.0021	−0.0006	+0.0113
327	+0.2814	−18.9753	−0.4237	+0.0018	−0.0006	+0.0113
328	+0.3830	−18.6634	−0.4168	−0.0007	−0.0007	+0.0111
329	+0.1470	−19.5289	−0.4362	+0.0050	−0.0005	+0.0116
330	+0.4247	−18.5865	−0.4150	−0.0018	−0.0008	+0.0110
331	+0.2434	−19.2578	−0.4301	+0.0026	−0.0005	+0.0114
332	+0.3232	−19.0371	−0.4251	+0.0006	−0.0006	+0.0113
333	+0.5023	−18.6310	−0.4160	−0.0039	−0.0008	+0.0111
334	+0.0414	−19.9485	−0.4458	+0.0076	−0.0004	+0.0181
335	+0.1340	−19.7226	−0.4406	+0.0052	−0.0005	+0.0117
336	+0.4167	−19.0516	−0.4253	−0.0018	−0.0006	+0.0113
337	+0.2707	−19.4187	−0.4337	+0.0018	−0.0006	+0.0115
338	+0.0946	−19.8367	−0.4432	+0.0062	−0.0005	+0.0118
339	+0.4707	−18.9788	−0.4237	−0.0032	−0.0007	+0.0113
340	+0.3385	−19.2869	−0.4308	+0.0001	−0.0006	+0.0114
341	+0.4091	−19.1437	−0.4275	−0.0017	−0.0006	+0.0114
342	+0.5183	−18.9189	−0.4225	−0.0045	−0.0007	+0.0112
343	+0.5165	−18.9341	−0.4227	−0.0044	−0.0007	+0.0112
344	+0.5053	−18.9789	−0.4237	−0.0041	−0.0007	+0.0113
345	+0.5661	−18.8597	−0.4211	−0.0057	−0.0007	+0.0112
346	+0.5029	−18.9951	−0.4241	−0.0041	−0.0007	+0.0113
347	+0.5908	−18.8781	−0.4215	−0.0064	−0.0008	+0.0112
348	+0.1321	−19.7961	−0.4423	+0.0053	−0.0005	+0.0117
349	+0.7204	−18.6849	−0.4171	−0.0097	−0.0009	+0.0111
350	+0.4900	−19.1291	−0.4271	−0.0038	−0.0007	+0.0114
351	+0.5120	−19.0943	−0.4263	−0.0044	−0.0007	+0.0113
352	+0.7818	−18.6308	−0.4158	−0.0113	−0.0010	+0.0111
353	+0.4574	−19.2634	−0.4301	−0.0031	−0.0007	+0.0114
354	+0.5991	−19.0364	−0.4249	−0.0067	−0.0008	+0.0113
355	+0.3819	−19.4263	−0.4339	−0.0012	−0.0006	+0.0115
356	+0.5201	−19.2272	−0.4293	−0.0047	−0.0007	+0.0114
357	+0.6032	−19.1458	−0.4273	−0.0068	−0.0008	+0.0114
358	+0.7334	−18.9919	−0.4239	−0.0102	−0.0008	+0.0113
359	+0.6820	−19.0670	−0.4256	−0.0089	−0.0008	+0.0113
360	+0.6622	−19.0994	−0.4263	−0.0084	−0.0008	+0.0113

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TABLE XVI.—FINAL CATALOGUE (concl'd).

No.	Mag.		R. A. 1888.0			N. P. D.	Decl. 1888.0			Y	X	Number in	
	Phot.	Vis.	h	m	s	"	°	′	"	"	"	B. D. M.	Car.
361	11.5	10.8	305	6	26	5390.40	88	30	9.60	−4409.25	+3099.71	.....	.....
362	11.6	11.2	307	20	48	1542.40	89	34	17.60	−1226.17	+ 935.67	.....	.....
363	9.2	9.4	309	41	4	6478.45	88	12	1.55	−4984.81	+4136.18	88 118	3193
364	10.0	10.3	310	3	16	5507.16	88	28	12.84	−4214.86	+3543.52	88 119	3204
365	11.4	12.0	310	9	15	3977.66	88	53	42.34	−3039.99	+2564.82	.....	.....
366	11.2	11.0	310	43	43	5188.45	88	33	31.55	−3931.44	+3384.98	.....	.....
367	10.3	10.6	311	6	32	851.92	89	45	48.08	− 641.89	+ 560.13	.....	.....
368	11.4	11.5	312	2	28	4437.94	88	46	2.06	−3295.65	+2971.69	.....	.....
369	12.0	10.8	312	44	10	5725.23	88	24	34.77	−4204.56	+3884.77	88 120	.....
370	11.0	9.9	314	31	25	5392.96	88	30	7.04	−3844.53	+3781.12	88 122	3241
371	11.2	10.1	314	47	4	6962.34	88	3	57.66	−4940.66	+4903.62	87 191	3230
372	10.5	10.4	314	53	7	1581.62	89	33	38.38	−1120.60	+1116.12	.....	.....
373	10.8	10.4	315	28	50	1353.84	89	37	26.16	− 949.24	+ 965.30	.....	.....
374	9.9	10.0	317	8	30	6212.19	88	16	27.81	−4224.81	+4553.07	88 123	3259
375	10.6	10.4	317	17	53	5435.74	88	29	24.26	−3686.01	+3994.21	.....	.....
376	10.9	10.8	317	46	16	3252.74	89	5	47.26	−2186.06	+2408.44	88 126	.....
377	10.6	9.6	318	31	59	5903.52	88	21	36.48	−3908.71	+4423.13	88 124	3276
378	10.5	10.3	318	52	18	4739.48	88	41	0.52	−3117.11	+3569.64	88 125	3292
379	11.5	12.0	319	41	55	5197.52	88	33	22.48	−3361.45	+3963.48	.....	.....
380	10.9	10.3	320	7	42	5237.65	88	32	42.35	−3357.34	+4019.36	88 127	3307
381	10.9	10.6	322	6	25	1185.97	89	40	14.03	− 728.40	+ 935.91	.....	.....
382	10.0	10.3	322	26	57	6396.56	88	13	23.44	−3897.85	+5070.46	88 128	3317
383	12.0	12.0	324	27	30	460.63	89	52	19.37	− 267.76	+ 374.81	.....	.....
384	10.5	10.3	326	1	53	4132.22	88	51	7.78	−2308.67	+3426.79	88 129	3374
385	11.2	12.0	328	6	36	4839.20	88	39	20.80	−2556.27	+4108.42	.....	.....
386	8.6	9.5	330	15	8	6034.58	88	19	25.42	−2993.82	+5238.59	88 130	3411
387	8.7	9.5	334	27	19	3953.96	88	54	6.04	−1704.90	+3567.24	88 131	3465
388	10.4	10.3	337	35	35	5646.67	88	25	53.33	−2152.14	+5219.69	88 132	3473
389	9.4	9.7	338	39	28	4786.44	88	40	13.56	−1741.81	+4457.80	88 133	3487
390	9.9	9.7	344	19	14	4459.14	88	45	40.86	−1205.01	+4292.87	88 134	3543
391	11.0	10.1	345	4	43	7048.24	88	2	31.76	−1814.52	+6809.23	87 211	3544
392	9.4	9.7	348	35	54	2904.75	89	11	35.25	− 574.21	+2847.34	89 39	3601
393	10.4	10.3	349	47	40	7095.60	88	1	44.40	−1256.95	+6981.95	87 215	3600
394	12.0	11.8	351	34	4	4156.98	88	50	43.02	− 609.53	+4111.76	.....	.....
395	11.5	11.3	353	4	0	4383.58	88	46	56.42	− 529.12	+4351.19	.....	.....
396	11.0	10.8	353	8	2	6502.13	88	11	37.87	− 777.20	+6454.43	.....	.....
397	10.2	10.3	353	37	36	4938.27	88	37	41.73	− 548.13	+4907.28	88 136	3642
398	12.0	11.1	353	41	46	6665.80	88	8	54.20	− 731.79	+6624.33	.....	.....
399	10.0	10.1	353	47	54	5143.42	88	34	16.58	− 555.58	+5112.79	88 137	3645
400	11.2	10.1	354	56	23	5114.08	88	34	45.92	− 451.03	+5093.61	88 138	3654
401	11.0	10.8	356	1	50	5453.98	88	29	6.02	− 377.50	+5440.25	.....	.....
402	9.2	9.7	356	2	51	6396.96	88	13	23.04	− 440.87	+6380.73	88 139	3670
403	11.3	10.3	356	37	8	5923.86	88	21	16.14	− 349.33	+5912.74	88 140	.....
404	10.6	10.7	356	38	6	6335.31	88	14	24.69	− 371.80	+6323.40	.....	.....
405	10.1	10.1	357	12	12	3889.78	88	55	10.22	− 189.78	+3884.91	88 141	3678
406	9.9	9.6	358	7	5	4241.40	88	49	18.60	− 139.28	+4238.81	88 142	3689
407	11.2	10.8	359	1	18	7372.74	87	57	7.26	− 125.86	+7370.10	87 219	.....
408	10.7	10.3	359	33	21	5421.35	88	29	38.65	− 42.02	+5420.56	88 143	.....

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PRECESSION COEFFICIENTS (concl'd).

No.	dy	dx	$100\,d^2y$	$100\,d^2x$	$10{,}000\,d^3y$	$10{,}000\,d^3x$
	"	"	"	"	"	"
361	+0.6926	−19.0610	−0.4255	−0.0092	−0.0008	+0.0113
362	+0.2091	−19.7785	−0.4419	+0.0032	−0.0005	+0.0117
363	+0.9242	−18.9294	−0.4223	−0.0153	−0.0009	+0.0112
364	+0.7918	−19.1041	−0.4264	−0.0118	−0.0009	+0.0113
365	+0.5731	−19.3701	−0.4324	−0.0062	−0.0007	+0.0115
366	+0.7563	−19.1684	−0.4278	−0.0110	−0.0008	+0.0114
367	+0.1252	−19.9095	−0.4448	+0.0054	−0.0005	+0.0118
368	+0.6640	−19.3120	−0.4311	−0.0085	−0.0008	+0.0115
369	+0.8680	−19.1059	−0.4264	−0.0138	−0.0009	+0.0113
370	+0.8448	−19.1872	−0.4282	−0.0134	−0.0009	+0.0114
371	+1.0957	−18.9378	−0.4224	−0.0198	−0.0011	+0.0112
372	+0.2494	−19.8021	−0.4423	+0.0021	−0.0005	+0.0118
373	+0.2157	−19.8406	−0.4433	+0.0029	−0.0005	+0 0118
374	+1.0173	−19.1000	−0.4262	−0.0178	−0.0010	+0.0113
375	+0.8925	−19.2225	−0.4289	−0.0146	−0.0009	+0.0114
376	+0.5381	−19.5622	−0.4368	−0.0054	−0.0007	+0.0116
377	+0.9883	−19.1715	−0.4278	−0.0172	−0.0010	+0.0114
378	+0.7976	−19.3513	−0.4318	−0.0122	−0.0009	+0.0115
379	+0.8856	−19.2956	−0.4306	−0.0144	−0.0009	+0.0115
380	+0.8981	−19.2964	−0.4305	−0.0148	−0.0009	+0.0115
381	+0.2091	−19.8900	−0.4444	+0.0031	−0.0005	+0.0118
382	+1.1329	−19.1725	−0.4276	−0.0210	−0.0011	+0.0114
383	+0.0838	−19.9932	−0.4467	+0.0064	−0.0004	+0.0119
384	+0.7657	−19.5332	−0.4360	−0.0115	−0.0009	+0.0116
385	+0.9180	−19.4763	−0.4345	−0.0154	−0.0009	+0.0116
386	+1.1705	−19.3756	−0.4323	−0.0221	−0.0011	+0.0115
387	+0.7971	−19.6685	−0.4390	−0.0124	−0.0009	+0.0117
388	+1.1663	−19.5646	−0.4365	−0.0221	−0.0011	+0.0116
389	+0.9960	−19.6585	−0.4386	−0.0177	−0.0010	+0.0117
390	+0.9592	−19.7792	−0.4414	−0.0167	−0.0010	+0.0117
391	+1.5214	−19.6360	−0.4379	−0.0316	−0.0013	+0.0117
392	+0.6362	−19.9228	−0.4448	−0.0082	−0.0008	+0.0118
393	+1.5600	−19.7603	−0.4405	−0.0327	−0.0013	+0.0117
394	+0.9187	−19.9128	−0.4444	−0.0157	−0.0009	+0.0118
395	+0.9722	−19.9303	−0.4448	−0.0171	−0.0010	+0.0118
396	+1.4422	−19.8694	−0.4430	−0.0296	−0.0013	+0.0118
397	+1.0965	−19.9248	−0.4445	−0.0205	−0.0011	+0.0118
398	+1.4801	−19.8791	−0.4433	−0.0306	−0.0013	+0.0118
399	+1.1424	−19.9228	−0.4444	−0.0217	−0.0011	+0.0118
400	+1.1381	−19.9462	−0.4450	−0.0215	−0.0011	+0.0118
401	+1.2156	−19.9616	−0.4452	−0.0236	−0.0011	+0.0118
402	+1.4257	−19.9449	−0.4447	−0.0292	−0.0012	+0.0118
403	+1.3211	−19.9668	−0.4454	−0.0265	−0.0012	+0.0119
404	+1.4129	−19.9605	−0.4451	−0.0288	−0.0012	+0.0119
405	+0.8680	−20.0071	−0.4466	−0.0144	−0.0009	+0.0119
406	+0.9471	−20.0177	−0.4467	−0.0166	−0.0010	+0.0119
407	+1.6468	−20.0122	−0.4462	−0.0352	−0.0014	+0.0119
408	+1.2112	−20.0367	−0.4470	−0.0236	−0.0011	+0.0119

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